10¢ A COPY

The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

Engineering News Statistics

March 28, 1930 Volume 57. No. 2

Performance PLUS - with

HUGHES

VALVES & FITTINGS

Sold By Supply Stores Everywhere

This photograph shows the Hook-up on Cromwell-Franklin Oil Company's Trosper Park No. 11 Well, Oklahoma City.

The well came in for approximately 11,000 barrels, with 2,000 lbs. pressure when shut in.

Hughes Valves and Fittings used successfully on this well are:

1—6⅜" API 5000-lb. test screw-end drilling valve in cellar.
1—6⅜" API 3000-lb. test "screw-end drilling" valve above cross.
2—6⅜" API 3000-lb. test FE valves on flow line.
2—4" 3000-lb. test manifold valves on flow line cross.
1—6⅜" API x 4" outlet type Z cross.

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON
TEXAS

Export Office
Woolworth Bldg.,
New York City

UNION WIRE LINE gives Outstanding Performance at BIG LAKE Well C-3 (NO. 131)

THE Richmond Drilling Company found that this well, one of the deepest cable tool drilled holes in the world, was a severe test of wire rope service. They also found that UNION wire gave a good account of itself on all operations.

In the picture, left to right, are H. M. Bushager, Driller; Claude Bosworth, Tool-dresser; L. C. McDonald, Tool-dresser; Mont Bosworth, Driller; and a 7-8", 10,000' UNION Drill Cable.

UNION WIRE ROPE CORP.
3 North Madison Ave., Tulsa, Oklahoma
Oil Country Sales and Export Offices, 336 Kennedy Building, Tulsa.
Branch Office and Warehouse, Portland, Oregon

Factory:
21st and Manchester, Kansas City

JARECKI MANUFACTURING CO.
Mid-Continent and Eastern Oil Fields, Distributors
• • STOCKS AT ALL STORES • •

TRADE MARK

UNION WIRE LINES

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

GASO PUMPS Are Popular Travelers

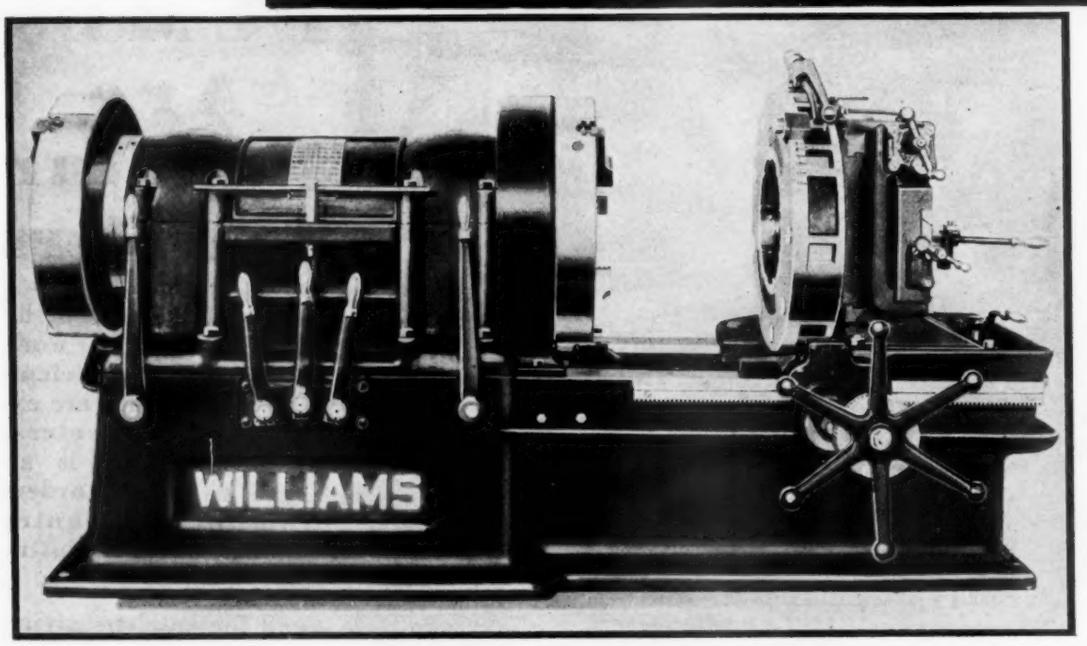
At home in all parts of the world . . doing their work dependably and efficiently . . Gaso Pumps are experienced travelers. Their popularity is attested by repeat orders from every country where the oil industry thrives.

Send for catalogs giving detailed specifications of Gaso Pumps for any requirements.

GASO PUMP & BURNER MFG. COMPANY
Tulsa, Okla., U. S. A.
Fort Worth, Texas
New York, N. Y.

GASO PUMPS
for every oil industry need

25% FASTER, LONGER-LIVED, MORE ECONOMICAL TO OPERATE



and one set of dies threads all sizes of pipe where pitch of thread is the same

THE WILLIAMS RAPIDUCTION THREADER

OSTER
WILLIAMS TOOL CORPORATION

For fast, economical production threading or cutting-off operations around the oil fields or in the refinery there is no other machine built that will handle as much work as rapidly, accurately and economically as the WILLIAMS Rapiduction.

Among the many features found in no other machine is the famous Rapiduction head that will thread all sizes of pipe within the range of the machine, where the pitch of thread does not change, without changing dies or die-head. This is important because it saves the time and bother of removing head and dies when changing from one size pipe to another.

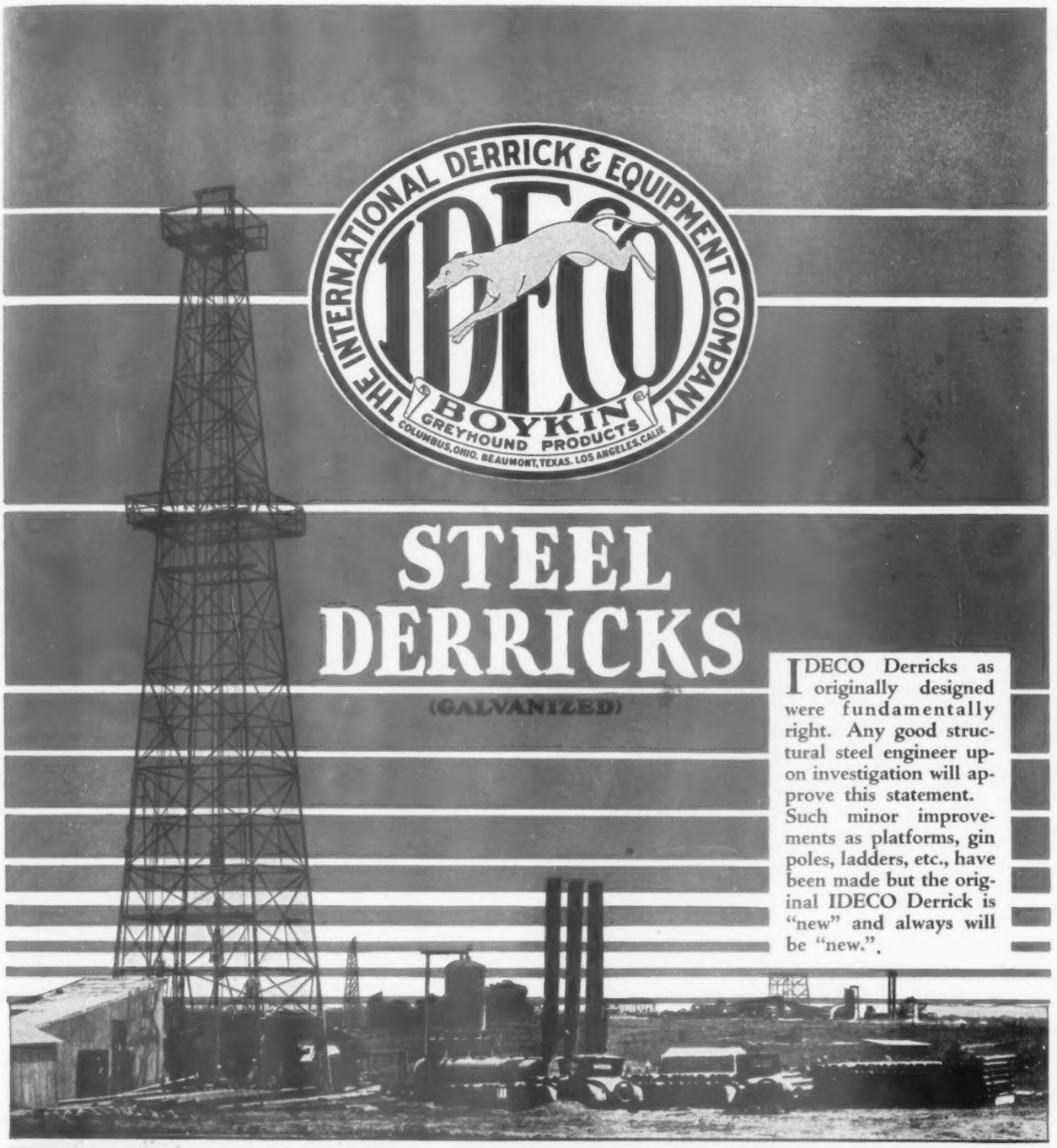
Of special interest to the oil industry is the taper attachment which can be furnished when required. This device makes it possible to cut correctly tapered threads of any length without the use of special dies.

Write for literature that describes in full the many exclusive features of the Rapiduction line that includes machines for all sizes from ⅛″ up to 20″. A Rapiduction will save its cost several times a year on your threading and cutting-off jobs.

A Leader in the Most Complete Line of Hand and Power Operated Pipe and Bolt Threading Equipment in the World.

THE OSTER MANUFACTURING COMPANY — JOINED FOR GREATER SERVICE — WILLIAMS TOOL CORPORATION

Sales Office—2064 East 61st Place, Cleveland, Ohio
Branch Offices—Boston, New York, Philadelphia, Chicago



STEEL DERRICKS

(GALVANIZED)

IDECO Derricks as originally designed were fundamentally right. Any good structural steel engineer upon investigation will approve this statement. Such minor improvements as platforms, gin poles, ladders, etc., have been made but the original IDECO Derrick is "new" and always will be "new.".

THE INTERNATIONAL DERRICK & EQUIPMENT COMPANY

COLUMBUS, OHIO **LOS ANGELES, CAL.**

Plants: Columbus, Delaware, Ohio; Torrance, California; Beaumont, Houston, Texas. *District Offices:* New York City, N. Y.; Pittsburgh, Pennsylvania; Wichita, Kansas; Tulsa, Oklahoma; Shreveport, Louisiana; Ft. Worth, Beaumont, Texas; Maracaibo, Venezuela. *Warehouses and Stocks:* Columbus, Delaware, Ohio; Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Earlsboro, Oklahoma; El Dorado, Wichita Heights, McPherson, Kansas; Houston, Beaumont, Big Spring, Odessa, Pyote, Pampa, Borger, Mexia, Luling, Wichita Falls, Grand Saline, Seguin, Hebbronville, Texas; Lake Charles, Shreveport, Louisiana; Smackover, El Dorado, Arkansas; Bakersfield, Taft, Torrance, California.
Export Offices: 74 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, Calif. 710

There's Much to be Said for Pipe Couplings

Like the chain and its link, no piping system is stronger than its weakest joint. That's why Republic pipe couplings are as carefully made as the pipe itself.

If you watched a Republic coupling being made you would see a series of accurate processes, checked at each point by rigid inspections . . . at the rolls, after tapping, after gauging or sizing, after threading . . . up to the final coat of protective oil. You would note particularly the threading . . . how clean, sharp, correct . . . and how important threads are protected by an electro-galvanized coating.

REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
STEEL PIPE

Resists Biting Wear of SLUSH & GRIT

The tough resilient tube resists the wear of slush, mud and sharp sands. The armor of heavy steel, spot welded, withstands highest pumping pressures and outside wear. The patented ball-joints permit free flexing without reducing internal clearance. For extra deep drilling use the "GSM" Super Rotary Hose. The Boss Tri-Duplex Couplings will not seep, blow off or leak under any pumping pressure.

"If Continental Sells It . . . . There Is No Better"

THE CONTINENTAL SUPPLY COMPANY
General Offices: ST. LOUIS

THE CONTINENTAL SUPPLY CO., LTD.
224 Traders Building, Calgary, Alberta, Canada

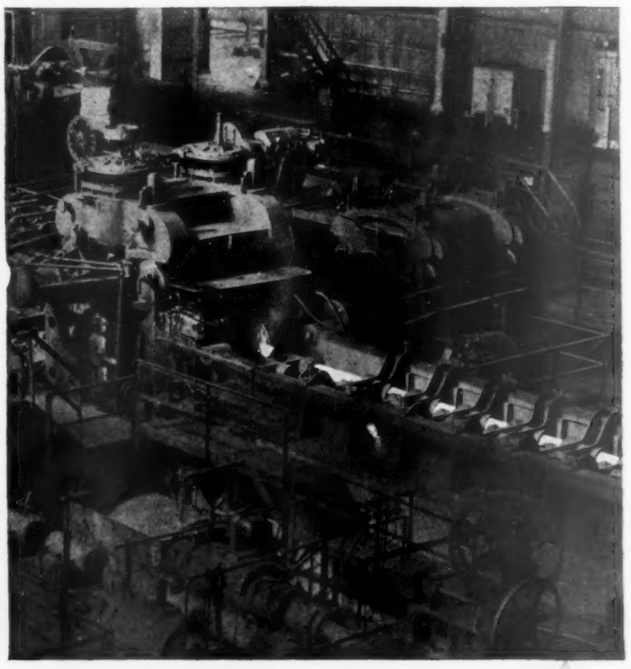
Export Offices: CONTINENTAL EMSCO COMPANY, INC. 74 Trinity Pl. New York—
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

J451

CONTINENTAL

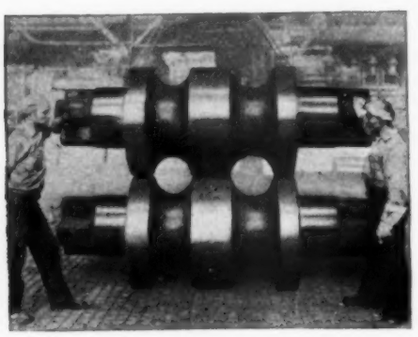
J & L SEAMLESS

Produced under Finest Control in the Heaviest Plug Mills in Existence

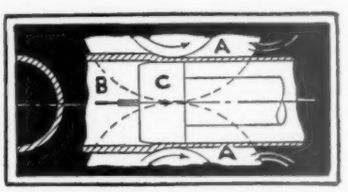


The picture shows one of the powerful J & L plug mills, the largest and heaviest in existence.

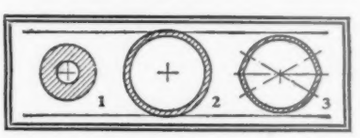
FACILITIES of J & L for making Seamless Casing, Tubing and Drill Pipe of highest quality are unsurpassed. For instance, J & L employs the heaviest plug mills in existence for producing all sizes of seamless from 2⅜" O.D. to 13⅜" O.D. By using this extra heavy equipment J & L has reduced detrimental vibration to a minimum, and has obtained as nearly perfect control as possible over an operation highly important to making seamless of superior quality. In the plug mill a denser steel structure and the correct weight per foot are obtained as the tube is rolled to approximately the exact wall thickness. The more thoroughly the plug mill does its work the greater will be the endurance and dependability of the finished pipe.



The picture at the left indicates the giant size of the rolls employed in the J & L Seamless Pipe plug mills.



Sketch of plug mill operation in seamless manufacture. "A" are the rolls, "B" is the tube, and "C" is the plug over which the tube is rolled.



Development of cross-section of J & L Seamless Pipe: 1. After first piercing; 2. After second piercing; 3. After plug mill rolling.

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

J&L STEEL

Manufacturers of Seamless and Welded Casing, Tubing, Drill Pipe and Line Pipe, and Welded Steam, Gas and Water Pipe in both Black and Galvanized.

Also makers of Bars, Shapes and Plates, Reinforcing Bars, Cold Finished Steel, Junior Beams, Steel Piling, Fabricated Structural Work, Steel Barges, Wire Products and Tin Mill Products.

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

THE BEST KNOWN WORD IN THE OIL BUSINESS

E&T

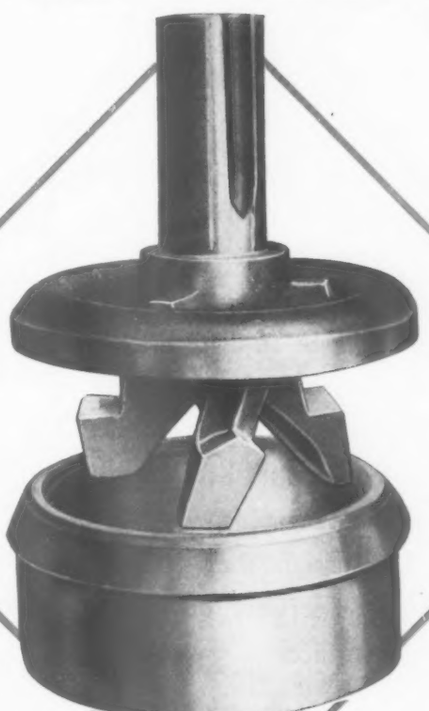
ALL-STEEL
SELF-CLEANING

VALVES

Unlike other valves on the market today, this new valve uses no rubber or other insert. The valve, valve stem and wing guide are cast in one piece of special alloy steel and scientifically heat treated—no parts to lose, break or replace.

No Rubber Inserts

No Parts To Buy



The special heat treatment given the valve stem and wing guide assures you of unusually long service. Valves in use now have given over 125 days of continuous service without replacement.

Regardless of the formation or the working pressure of your pumps, E & T valves will perform more efficiently and economically than any other valve made.

T. T. WORD SUPPLY CO., Inc.

Lake Charles **HOUSTON** **Shreveport**
Seguin

Send Mail to
P. O. Box 276
HOUSTON, TEXAS

PHONES
Day . . . . . Pres. 1927
Night . . . . . Val. 21022
Had. 1973
HOUSTON, TEXAS

This picture shows the ease with which Alcoa Aluminum Foil is applied to oil storage tanks

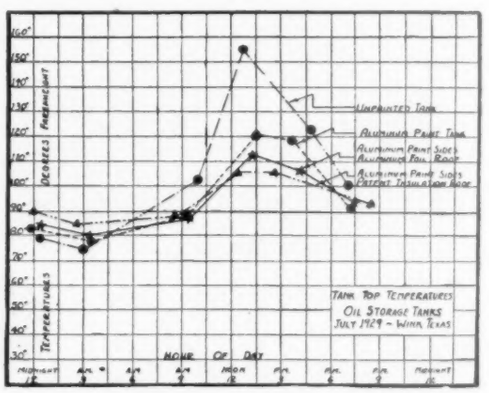
Three major benefits recommend Alcoa Aluminum Foil as a protective coating for oil storage tanks. First, come the measurable dollars and cents saving of reduced evaporation losses of the tank contents; second, there are durability and protective properties; third, the comparative ease and speed with which Aluminum Foil is applied.

The evaporation savings are possible because the brightly polished surface of Alcoa Aluminum Foil reflects the sun's heat.

Then too, Alcoa Aluminum Foil possesses excellent corrosion resistance under a very great variety of conditions.

The cost of an aluminum-foiled job is only slightly greater than the cost of using special corrosion-resistant paints for the same area. Foil .003 or more inches in thickness can be applied without difficulty. Although foiling is a new method of surface protection, it has already achieved conspicuous success. Chart at right shows relative heat reflectivity of various tank surfaces.

We will gladly send you full information. ALUMINUM COMPANY *of* AMERICA; 2419 Oliver Building, PITTSBURGH, PENNSYLVANIA.

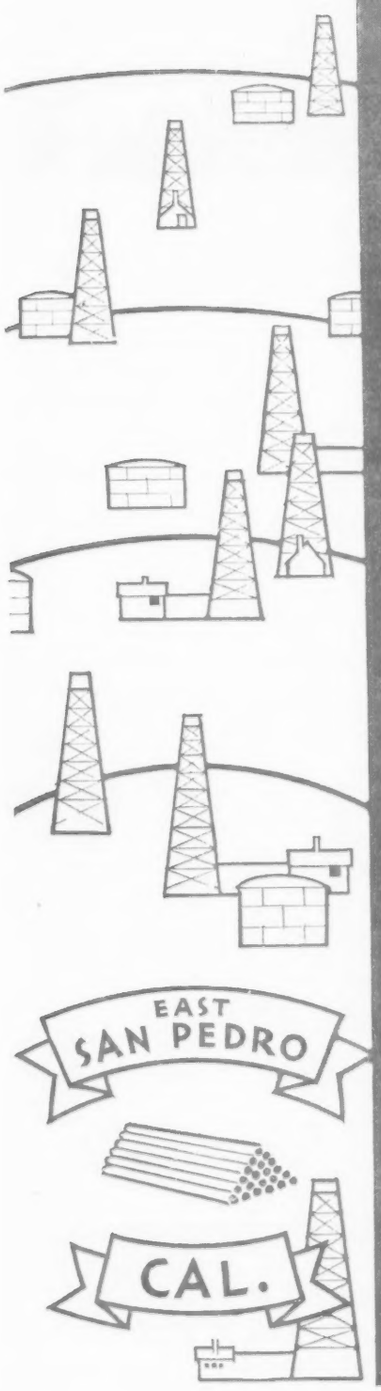


This chart indicates the relative heat reflectivity of various tank surfaces.

Tank No.	How Painted	Vapor Space Temperatures during a typical 24-hour period Maximum:	Minimum:	Change:
1620	Not painted	127	83	44
1621	Aluminum paint, roof and shell	111	82	29
1625	Aluminum paint, roof and top ring; red paint shell	113	84	29
1622	Insulated roof; Aluminum painted shell	105	86	19
1624	Aluminum foil roof; Aluminum painted shell	102	83	19

These figures and curves taken from a paper presented before American Petroleum Institute, Chicago, December 5, 1929, by Mr. Stanley Gill, Research Department Gulf Oil Company, Houston, Texas, indicate the great possibility of aluminum foil for tank coatings.

ALCOA ALUMINUM
ROLLED INTO FOIL



Quick service from LOCAL STORAGE YARDS

WELL-STOCKED storage yards, conveniently located for quick service to the oil country, enable us to assure quick delivery of Pittsburgh Seamless Pipe and Casing at all times. Orders from the Mid-Continent and Gulf Coast fields are filled within twenty-four hours at our large pipe storage yard at Memphis, Tennessee. Fast service to the California fields is made possible through big stocks constantly maintained at East San Pedro.

To many customers on the Gulf and West Coast, Pittsburgh Seamless has come to mean "speed" as well as "service." We invite your hurry orders.

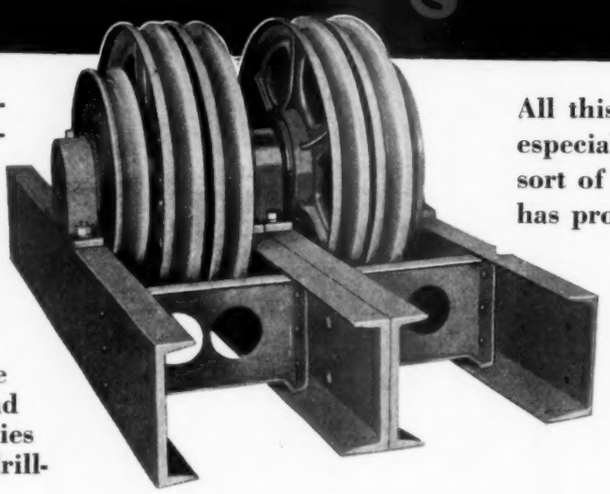
Pittsburgh Steel Products Co.
Division of
Pittsburgh Steel Co.
New York Tulsa Detroit Chicago
Pittsburgh St. Louis Houston

Pittsburgh P Seamless

DRILL PIPE CASING TUBING

3010

Busting Gumbo
With Non-busting Bearings



Here's *one* Roller Bearing that Drillers using—and Companies making — Heavy Duty equipment have found can be trusted to handle the loads. In short time AMERICANS have made a deep dent in the minds of all who have had to meet the responsibilities that come with deeper drilling.

All this because: 1—They are especially made just to do this sort of thing; 2—Their steel has proved superior in hardest drilling service; 3—They never need to be adjusted . . . Only three reasons — yes; but any one of them would be enough to explain the industry-wide preference.

The new "American" Catalogue is now ready for distribution

HEAVY DUTY AMERICAN

—Roller Bearings are used in this straight line crown block which has six sheaves mounted on two pins. The outside end of each pin rests in a separate box which is supported by a 50 lb. per foot I beam. The inside ends of the two pins rest in the same box which is supported by two 50 lb. per foot channel irons securely bolted together. There are four 36″ manganese steel sheaves for drilling line which rotate on large, Heavy-Duty American roller bearings. Each of the six sheaves is lubricated from the end of the pin by an individual Alemite connection.

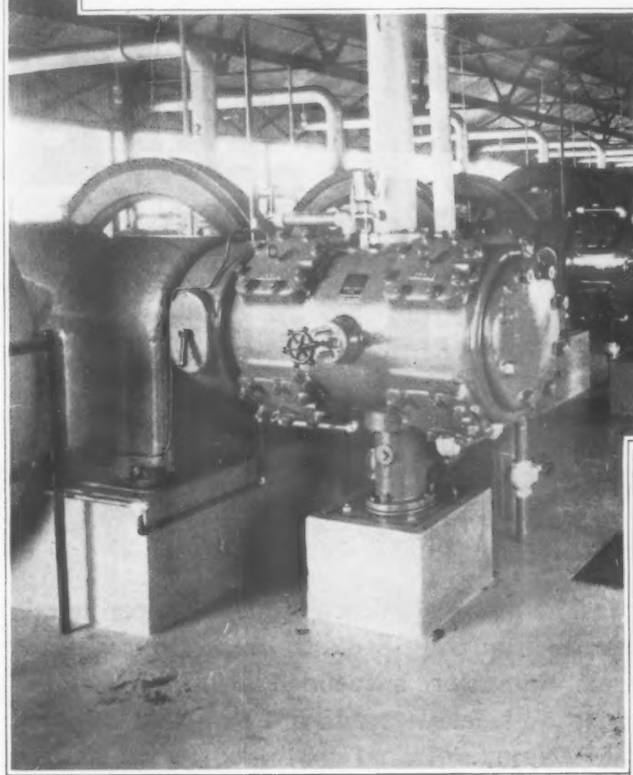
American Well & Prospecting Co.
Boykin Division, International Derrick & Equipment Co.
Doheny Stone Drill Co.
Emsco Derrick & Equipment Co.
Franklin Valveless Engine Co.
Hopper Machine Works
International Derrick & Equipment Co.

Latex Iron & Steel Works, Inc.
Lee C. Moore Co.
Lucey Manufacturing Corp.
National Supply Company
Oil Well Supply Co.
Star Drilling Machine Co.
Portable Rig Co.
T. T. Word Supply Co.

AMERICAN ROLLER BEARING COMPANY

PITTSBURGH — Pacific Coast Representatives: FRANK M. COBBLEDICK CO., 193 Polk St., San Francisco — EDWARD D. MALTBY CO., 421 W. Pico St., Los Angeles, Cal. — PENNSYLVANIA

Double-Acting CLARKS in Texas



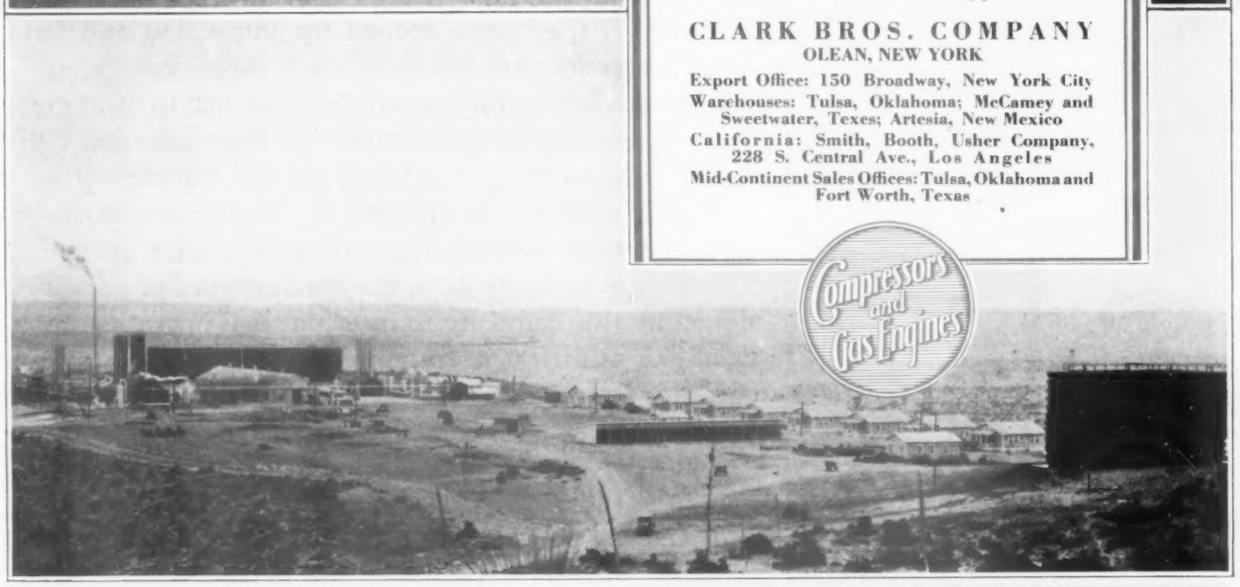
The above view of the engine room at the Humble Oil & Refining Co. gasoline plant near McCamey shows two CLARK 2-cycle engines and twelve CLARK *Double Acting* Super 2s. Three more Double Acting engines are now being added.

CLARK Double-Acting engines are living up to the high standards of service and efficiency set by the famous single-acting Super 2-Cycle CLARKS. They are made in 200 H. P. and 400 H. P. types.

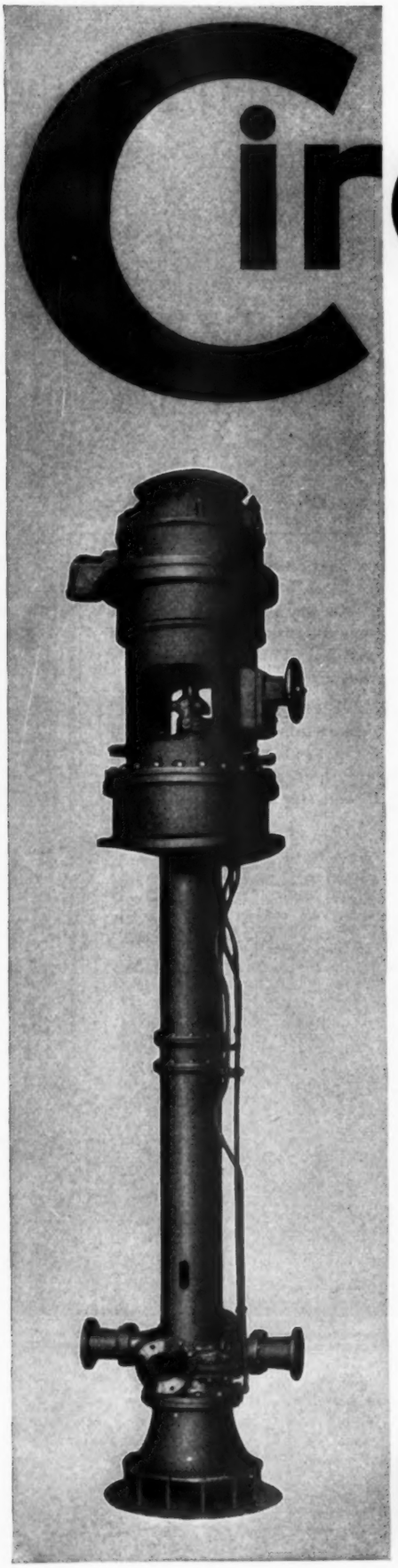
CLARK BROS. COMPANY
OLEAN, NEW YORK

Export Office: 150 Broadway, New York City
Warehouses: Tulsa, Oklahoma; McCamey and Sweetwater, Texes; Artesia, New Mexico
California: Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles
Mid-Continent Sales Offices: Tulsa, Oklahoma and Fort Worth, Texas

Compressors and Gas Engines



CLARK



Circulating still pumps

These vertical centrifugal pumps are used in conjunction with Stratford Circulating Stills to keep oil moving over the fired area. Pumps are suspended within the still or in special domes outside. Records are available of Byron Jackson Still Pumps operated continuously for 250 days after which they were opened for inspection and found ready for continued service without repair or change.

Built in sizes having capacities from 600 to 3600 g.p.m. For convenience in distributing oil, four outlets are provided from the volute discharge casing. Packing gland at surface is operated by an external mechanism, as shown, completely enclosed and arranged for steam quenching. This unit is an example of the special types of pumps designed by this company to meet unusual operating conditions. In addition, a full line of standard centrifugal pumps is manufactured for every requirement of industry.

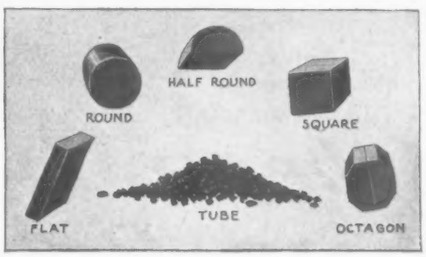
SINCE 1872

BYRON JACKSON CO.

Factories: BERKELEY, Los Angeles, Visalia, Calif.
Branches: NEW YORK and CHICAGO
San Francisco, Portland, Salt Lake, Tulsa, Dallas, Phoenix

BYRON JACKSON
CENTRIFUGAL PUMPS FOR EVERY SERVICE

2 BIG favorites!



ANGLITE
DIAMOND-SUB METAL

Anglite possesses the hardness and tensile strength necessary for diamond substitute setting any bit, and it covers all the demands of modern drilling bit operations, from ease of application to maximum footage. Tube Anglite—a crushed form of Anglite metal—is unexcelled for facing core bits, underreamers, and also as a facing for Anglite inserts. Write for complete information.

National
CASING PROTECTOR

National Casing Protectors are built to withstand any drilling strain imposed upon them. They eliminate the destructive rub of drill pipe against casing, reduce wobbling and vibration, and prolong the life of drill pipe, casing and all working parts of the drilling rig. They do not interfere with the use of fishing tools—they wear indefinitely, and never come off. They *will not* stack on the drill pipe. Write for further details.

National
TOOL & METALS, INC.

Division of
GLOBE OIL TOOLS COMPANY
Los Nietos, Calif.

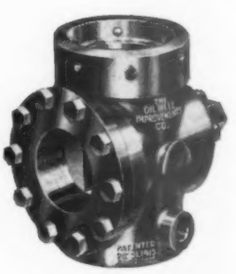
A Drilling Well Without A CONTROL CASING HEAD

is Like a Train Without Brakes

It is obvious that a train could be operated without brakes only at fearful risk to property and human lives. Yet the potential destructiveness of a speeding train is matched by the threat of an uncontrolled oil or gas well.

With an O. W. I. CONTROL CASING HEAD at the head of the well, when any sudden flow may be encountered the well can be instantly shut in, or the flow diverted in any manner desired. The driller is absolute master of any pressure situation which can develop.

A CONTROL CASING HEAD on every drilling well—to guard lives, to protect property and to prevent waste of oil or gas—is the only sound business policy.



TYPE "C"

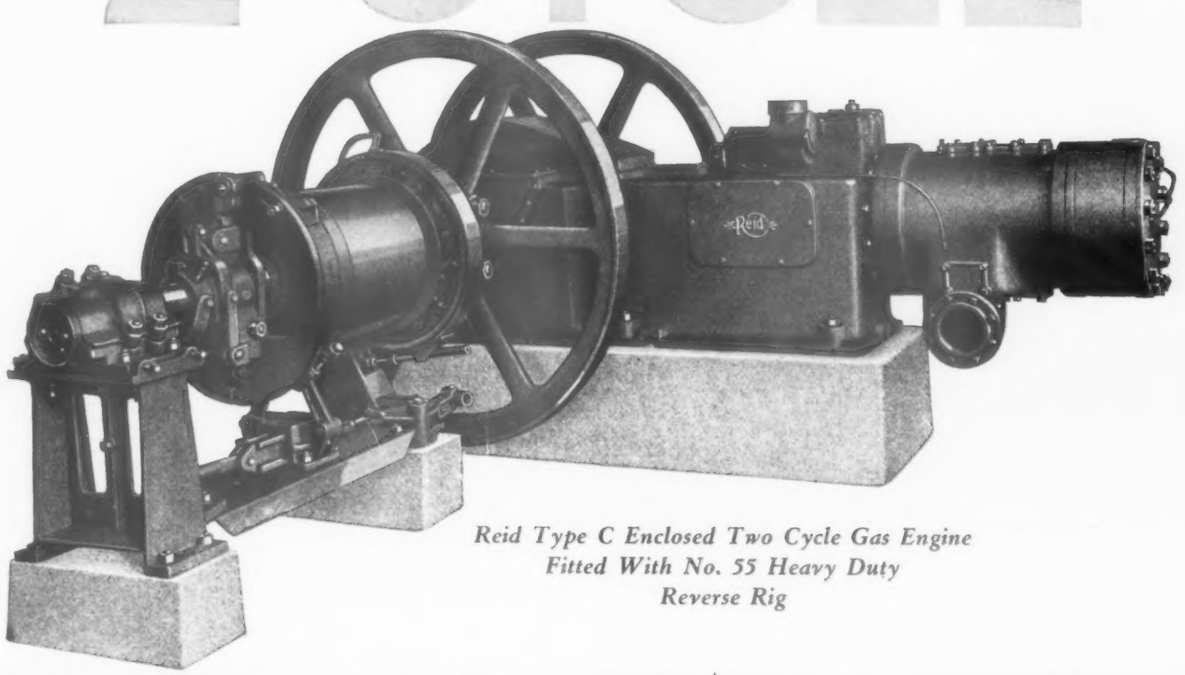
BETTER LATE THAN NEVER

BUT, This O. W. I. Control Casing Head should have been on this well BEFORE FIRE destroyed the rig, threatened the well and endangered human life.

THE APEX STUFFING BOX for polished rod reduces maintenance and pumping costs. We also manufacture Roller Oil Savers, Casing Heads, and high pressure fittings for oil and gas wells and pipe lines. Write for catalog and quotations.

THE OIL WELL IMPROVEMENTS CO.
Tulsa, Okla.

REID GAS ENGINES



Reid Type C Enclosed Two Cycle Gas Engine Fitted With No. 55 Heavy Duty Reverse Rig

In the Reid Type C Gas Engine and the Number 55 Reverse Rig you have a power unit that meets every demand for beam well pumping—an engine with abundant power and wide speed range, and a reverse rig that will safely transmit the power of the engine.

The Type C Engine incorporates a number of outstanding features, given herewith, and is the soundest engine investment that you can make.

The Number 55 Reverse Rig is of extra-strength construction throughout. Features of its design include a 5-inch diameter steel shaft, 24-inch band type clutch fitted with 6-inch wide clutch band, 30-inch brake wheel, steel gears and pinions running in oil bath, improved brake wheel design providing easy access to interior of brake wheel without disturbing shaft mounting, 14-inch outerbearing, and a pulley brake which enables operator to hold pulley at any position.

Write any branch or agency for complete information and descriptive bulletins on this machinery.

JOSEPH REID GAS ENGINE COMPANY

OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES: Marietta, Newark, and Logan, Ohio; Charleston, W. Va.; S. R. Shoup, 724 Board of Trade Building, Los Angeles, California. DISTRIBUTORS: Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Oklahoma, Distributors for Bradford and Pittsburgh, Pa., Mt. Pleasant and Muskegon, Mich., Kentucky, Oklahoma, Kansas, Texas, Arkansas, Louisiana and Wyoming; R. B. Moore, Bolivar, N. Y.; distributed in California by The Republic Supply Co. of California, Los Angeles, Calif.

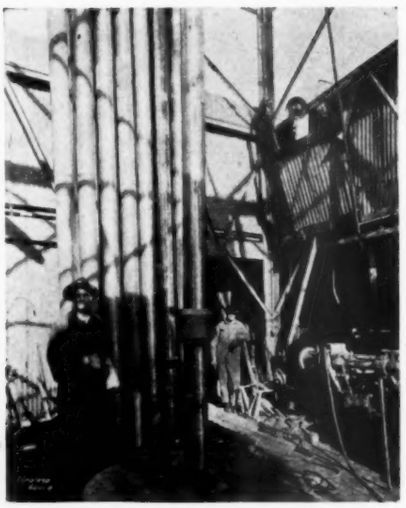
EXPORT SALES REPRESENTATIVE—Oil Field Equipment Co., Inc., 30 Church Sreet, New York City.

18

Outstanding Features of the Type "C" Engine

- Removable cylinder head.
- Cylinder can be removed without disturbing governor case.
- 3-Feed Force feed oiler for cylinder.
- Exhaust ports amply water-jacketed.
- Automatic air starting valve.
- Governor or speed wheel regulated gas valves.
- Governor may be adjusted for any desired speed while engine is running.
- Speed wheel arrangement permits engine speed to be increased without changing setting on governor.
- Enclosed governor running in oil.
- Disc type inlet valve on top of cylinder.
- Governor, Wico igniter, and oil circulating pump mounted as one unit.
- Bored Cross-head guide.
- Split hub flywheels; one furnished with Reid std. hub, other wheel furnished with A.P.I. std. hub.
- Removable steel backed babbitt-lined main bearings.
- Enclosed bed plate.
- Counterbalanced crank.
- Helical drive gears for lay shaft.

View of Bettis Drill Stabilizer installed on a flush drill pipe used in a California field. The Stabilizers may be easily installed in the same manner as Bettis Protectors. Ask for descriptive folder.



Bettis Drill Stabilizers

The Modern Necessity for Straight Hole Digging... Keeps the Drill in Alignment

PROPER PROTECTION IN OPEN HOLE

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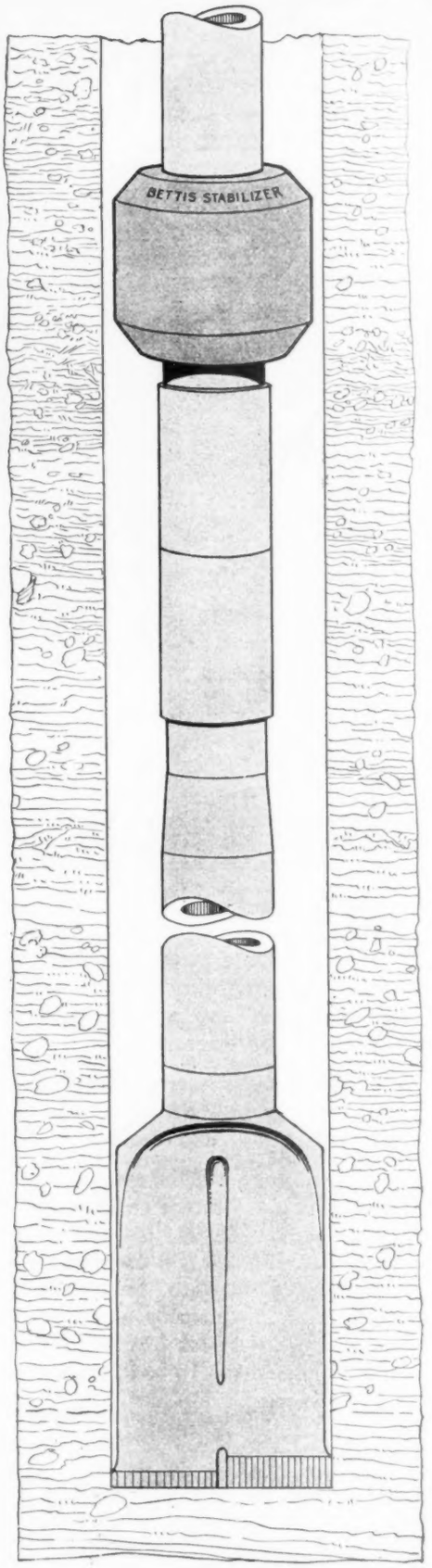

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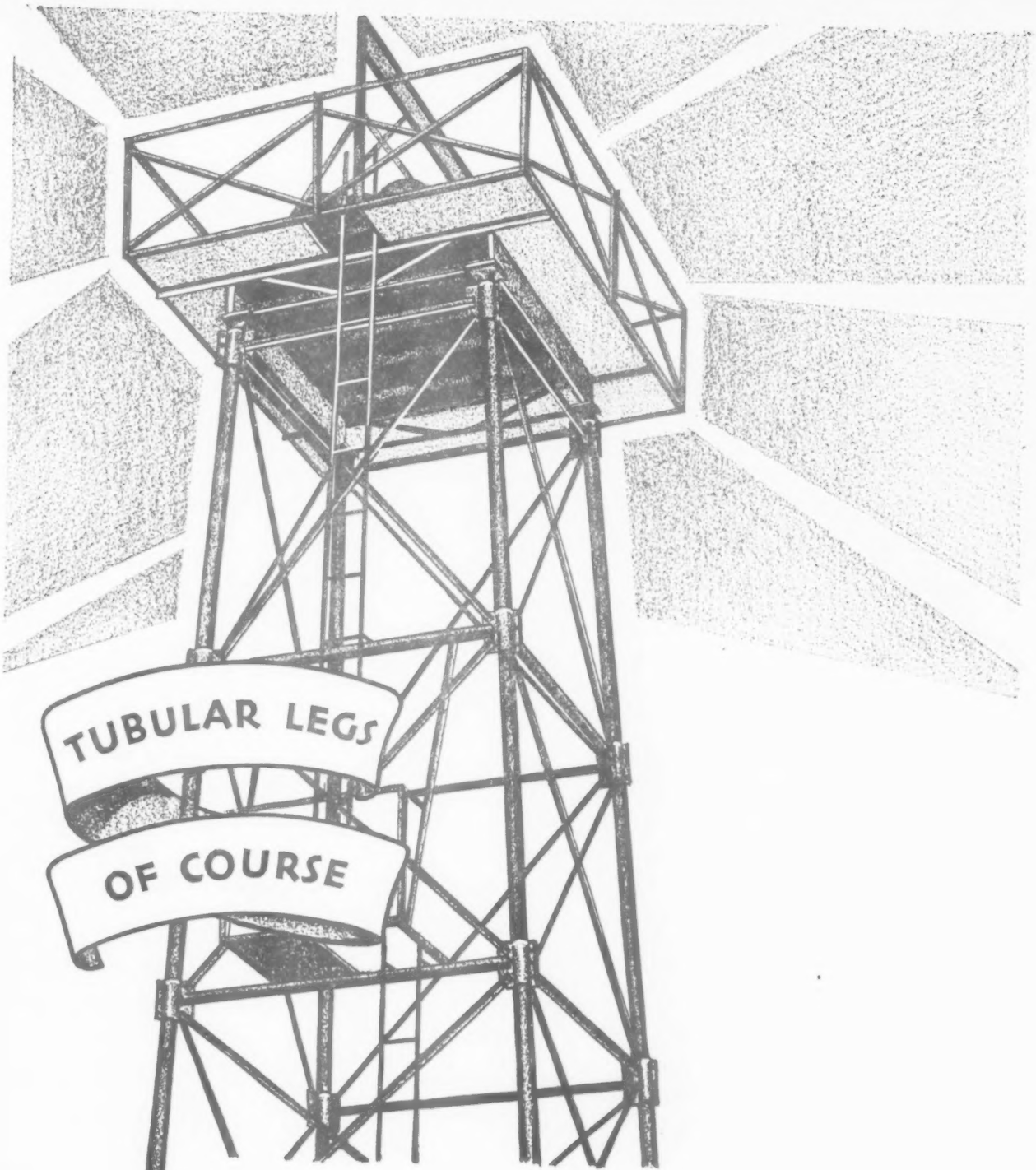

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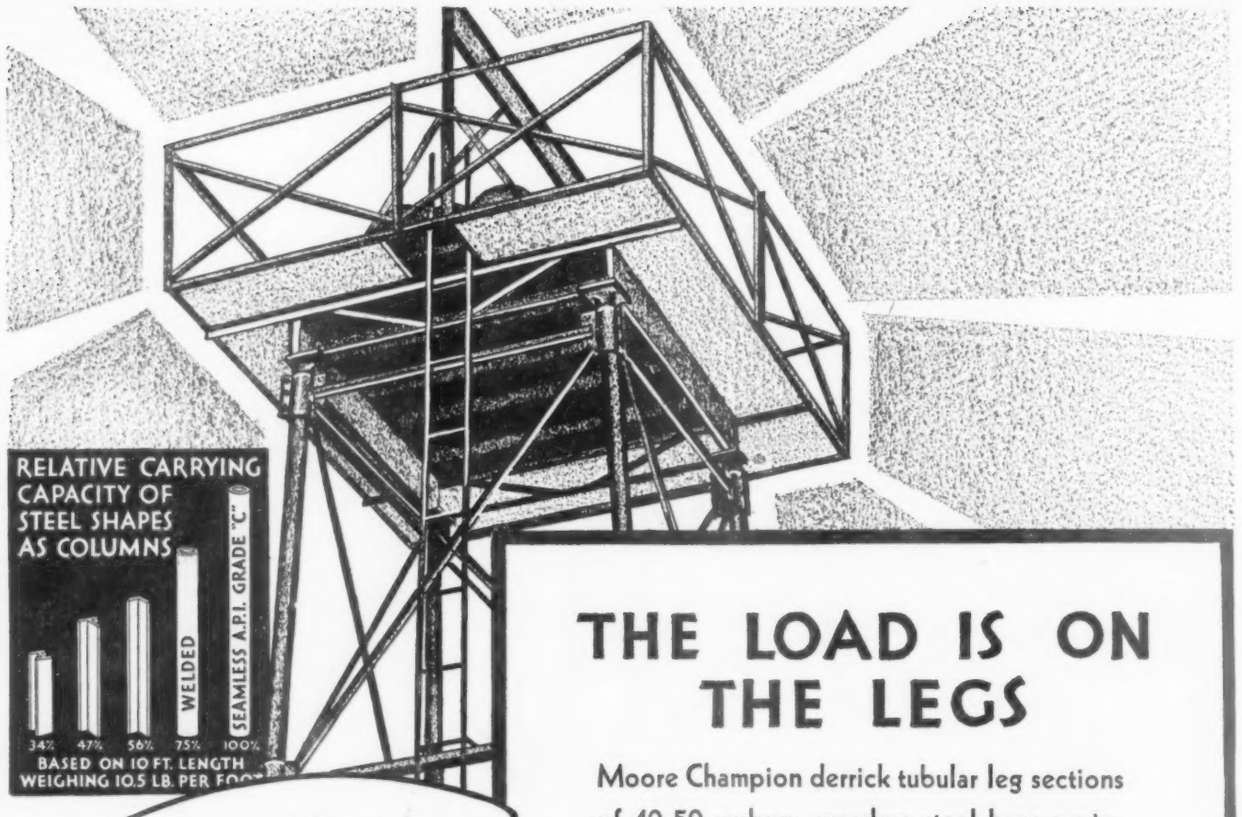

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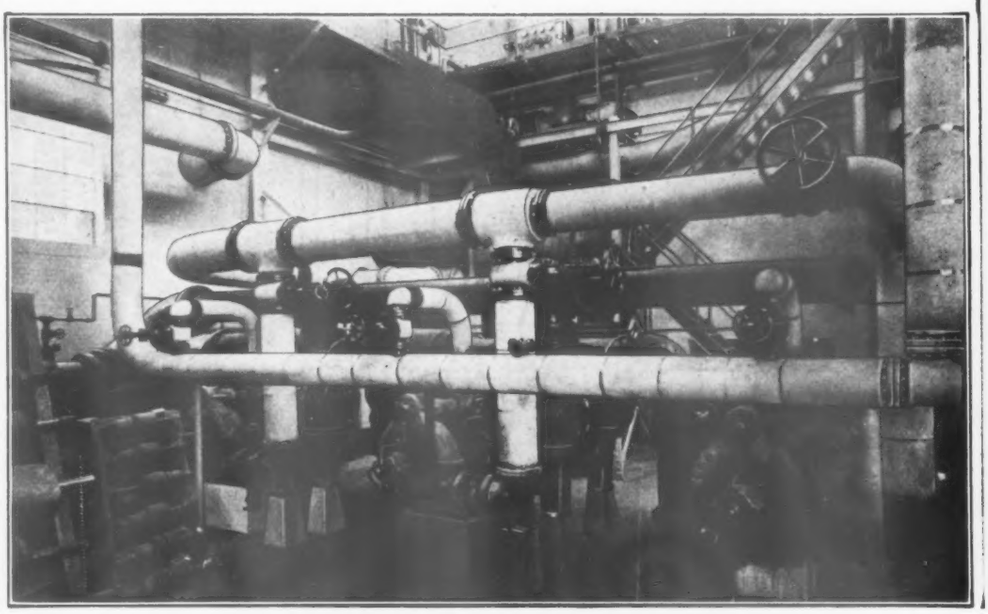

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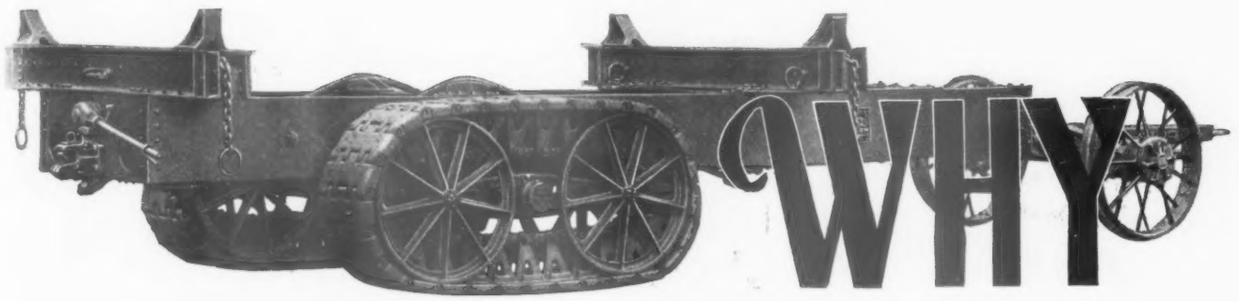

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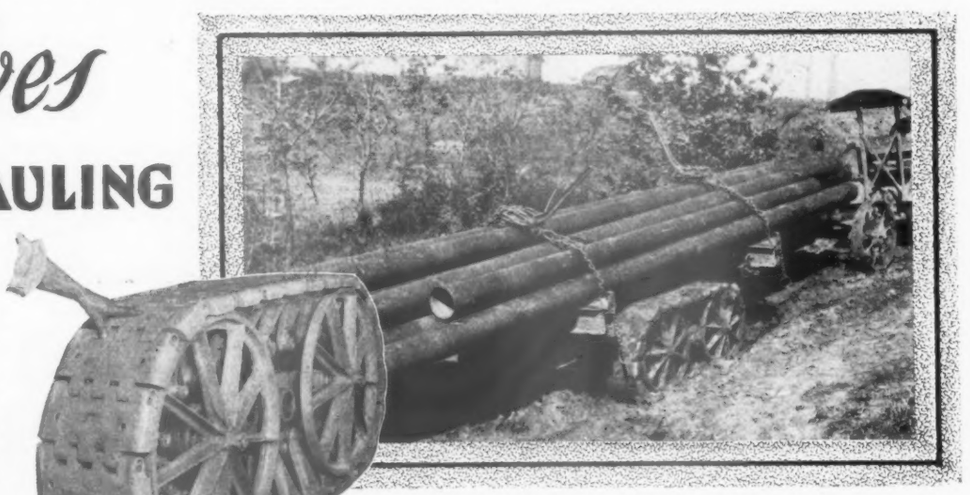

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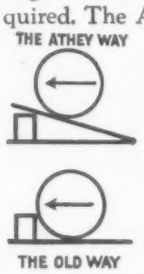

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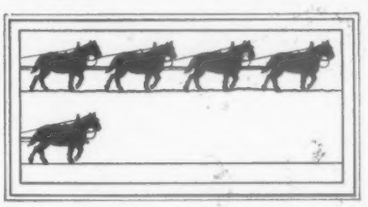

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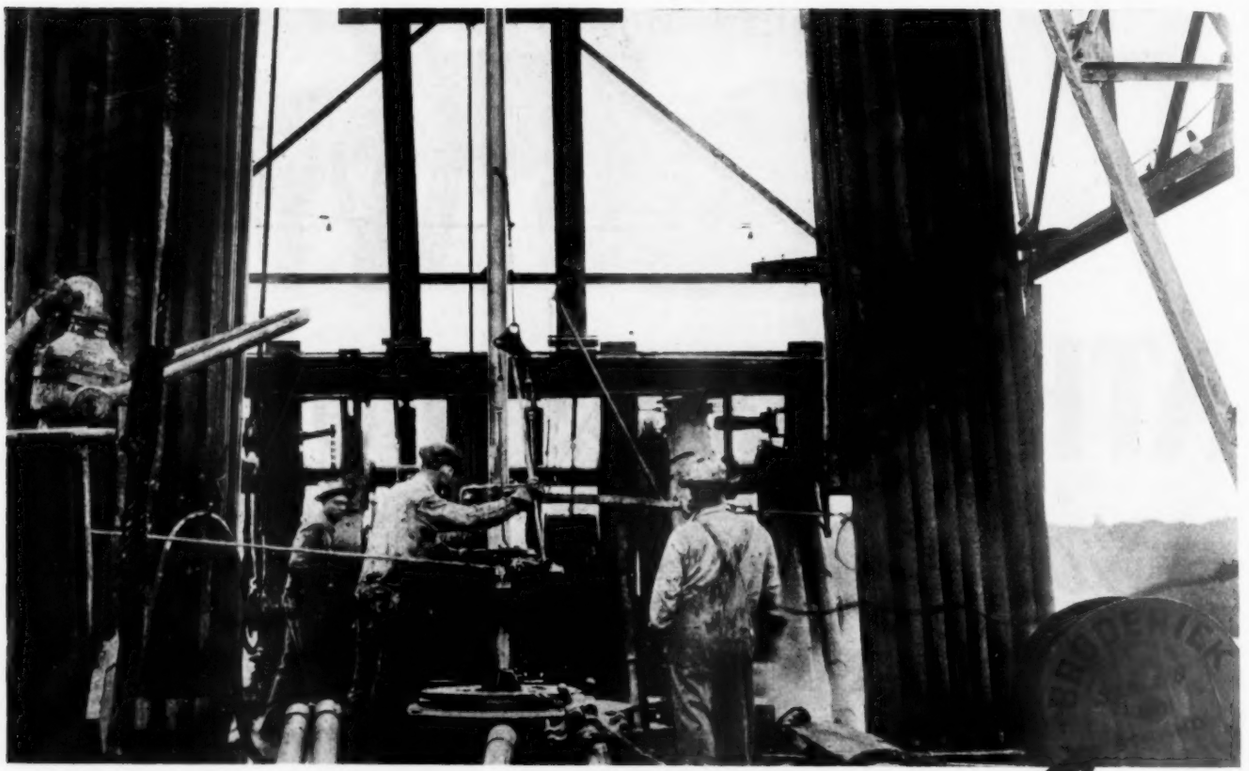

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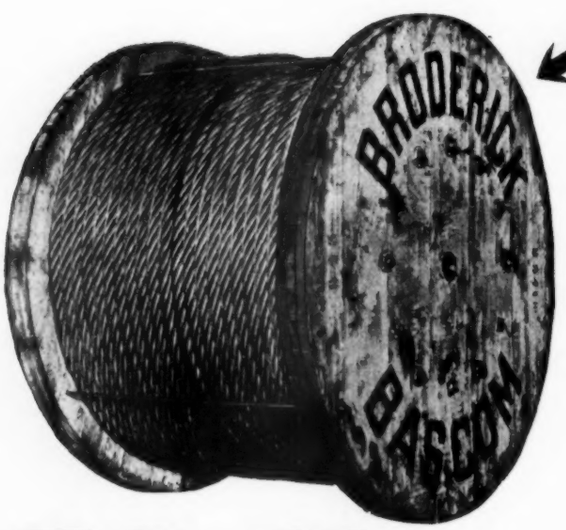

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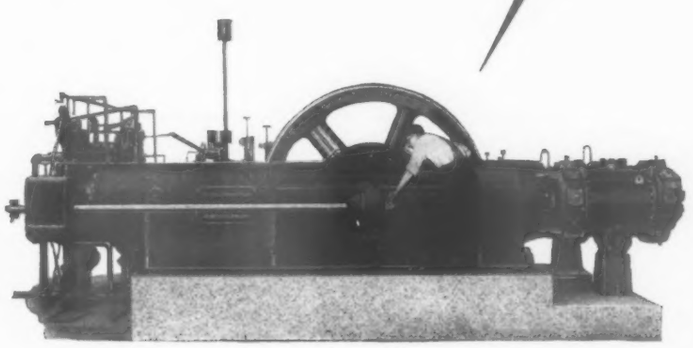

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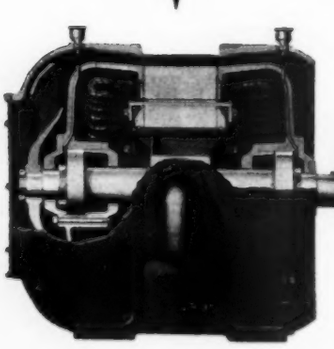

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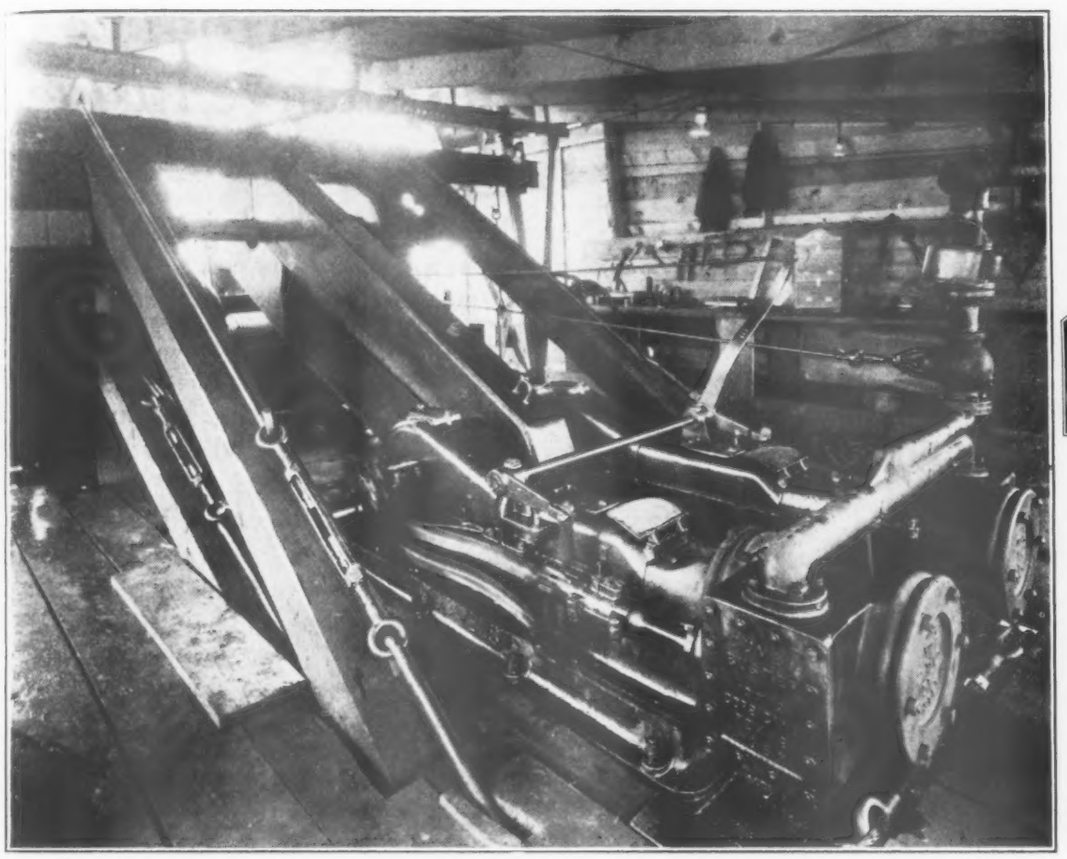

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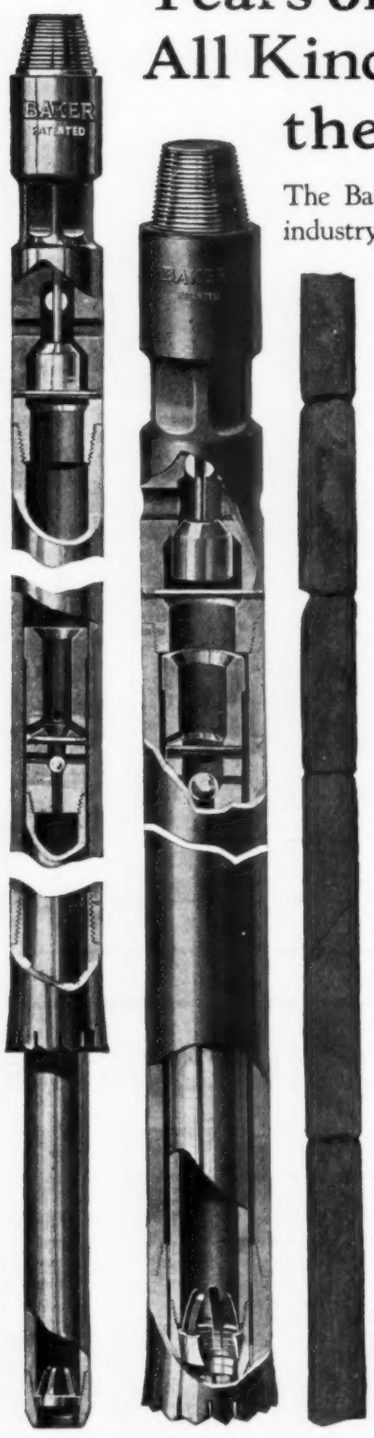

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Figure "A" shows the Core Barrel with the Core Retaining Tube extending out of the Drill Barrel. "B" shows a large view of the inner construction. "C" shows a sample recovery and indicates the clean-cut, uncontaminated cores secured by the Baker Barrel. "D" illustrates the Core Tube Tongs, and "E" the Drill Barrel Tongs, The Baker Two-Stage Hydraulic Core Extractor is shown by "F", with the High Pressure Piston in action. A slight movement of the catch disengages the High Pressure Piston and engages the Low Pressure Piston. The Sub "G" is attached at "H", and it will be noticed that it has both male and female threads, for attaching to either end of the Core Retaining Tube. "I" is the Core Pusher Plunger, which fits snugly within the Core Tube.

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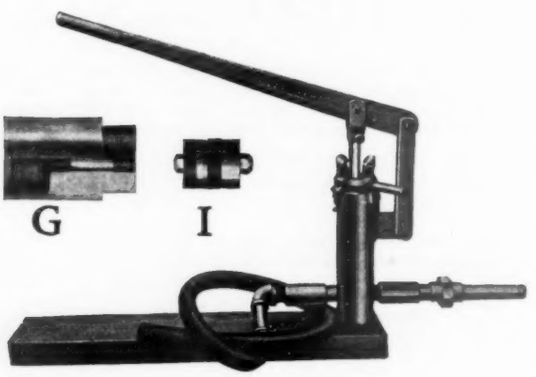

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Volume 57, No. 2 *March 28, 1930*

The OIL WEEKLY

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Swabbing Is Poland's Most Important Production Method

By T. S. SZWABOWICZ

POLAND, like any other oil producing country, is using several methods of exploitation of crude oil, more or less adapted to the prevailing conditions. In order to give some idea which method is the most important, the author compiled four tables stating, in this respect, true conditions of the last four years.

On Table 1 there are shown average numbers of producing wells, classified accordingly to the exploitation system they are employing. Pumping wells outnumber all the rest of producing wells, and therefore this table is somewhat misleading, because the bulk of production does not come from pumping wells, but on the contrary it is obtained from the wells that are being swabbed. This can be readily seen from Table II, which is based on production of crude. There is shown production both of Boryslaw district, and that of all other fields of the country taken together; the second and sixth column of this table represent total daily production, third and seventh give daily amount of crude obtained only by swabbing, and fourth and eighth expresses production obtained by swabbing, in per cent of total daily output of each group of fields. This shows that the Boryslaw field[1], the biggest oil field that has ever been discovered in Poland, is chiefly producing by means of swabbing.

The Bitkow field, next in size to Boryslaw, too has been largely using swabbing for exploitation. Production, however, obtained in this field through swabbing has been decreasing since 1926, and this fact is pointed out on Table III. Despite of an upward trend of daily total of the field, its "swabbed" crude is decidedly declining.

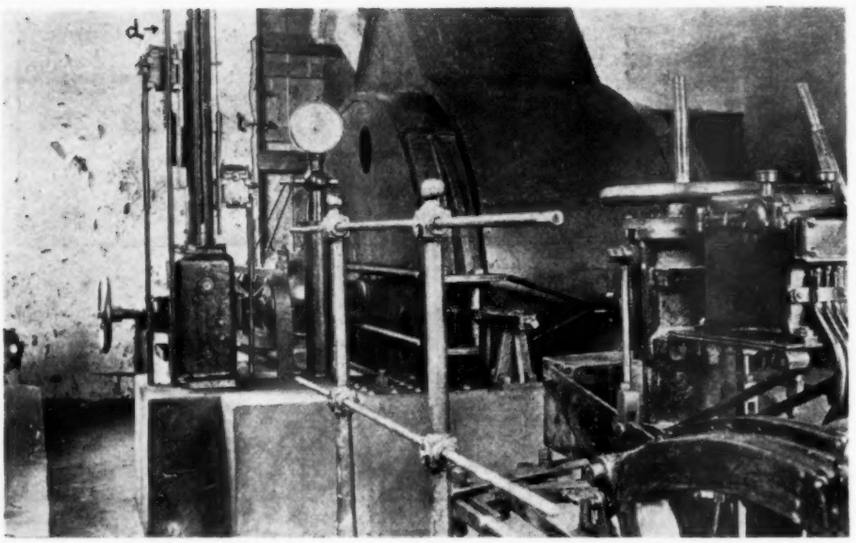
Swabbing

Poland's production of crude obtained by swabbing exceeds 70 per cent of total output (see Table IV), while the number of swabbing wells is only 15 per cent of all producing wells. If one takes the amount of crude produced by swabbing, with due consideration for the high investment costs involved in this method, one must arrive at the conclusion that in Poland swabbing is by far the most important way of lifting oil from the well.

The first swab was designed and built in 1905. During that year the Boryslaw field was discovered. After the flowing stage passed which followed the discovery

Typical outlook of a swabbing well in Poland

[1]This field is still yielding the bulk of production. It was 84 per cent in 1926, 82 per cent in 1927, 71 per cent in 1928, and 68 per cent of country's total in 1929.



Electric hoist. Depth indicator is shown (d) and tachometer (t)

TABLE I*

Number of wells producing by each method.

Boryslaw field wells

Year	Flowing	Swabbing	Bailing	Pumping
1926	7	296	17	59
1927	7	322	54	42
1928	4	335	81	34
1929	6	345	93	29

Other field wells

Year	Flowing	Swabbing	Bailing	Pumping	Total
1926	15	50	30	1517	1991
1927	10	50	50	1613	2183
1928	13	55	60	1750	2332
1929	13	54	88	1830	2458

TABLE II*

Daily total production, and daily production obtained by swabbing.

Boryslaw field

Year	Daily total production tons	Daily production obtained by swabbing tons	Production by swabbing in per cent of daily total per cent
1926	1670	1342	80
1927	1423	1260	90
1928	1350	1266	93
1929	1170	1147	98
Other fields			
1926	308	97	31
1927	313	71	23
1928	549	77	14
1929	547	84	15

TABLE III*

Bitkow field

Year	Daily total production tons	Daily prod. through swabbing tons	Production through swabbing in per cent of daily total per cent	Producing wells	Swabbing wells
1926	71	62	87	73	38
1927	60	47	79	84	35
1928	67	48	71	85	32
1929	90	42	47	94	27

TABLE IV*

Poland's daily total production, and daily production by swabbing.

1926	1978	1439	73	1991	346
1927	1736	1331	77	2183	372
1928	1899	1343	71	2332	390
1929	1717	1231	72	2458	398

*All data given in the above tables, represent true state of wells or production respectively, toward the end of each year.

within the very short time, as the control of high pressure wells was unknown, operators found themselves at the loss what to do with drill-holes full of oil. Invention of the swab came to rescue, and was quickly adapted to the conditions.

The first design of swab which is still used in the same form, is shown on Figure 1. The body (a) of this swab has a 3½-inch hole drilled from its lower end up to the place where its tapered part begins. At the lower end the 3½-inch pipe (b) is fitted in, thus forming a stem on which a rubber ring (c) is placed between two washers (d), and two springs (e). Inside of the body, at the upper end of the pipe (b), there is standing valve (f) which serves the same purpose as a similar valve in the ordinary oil well pump. The nut (g) can be moved up or down by turning around the lower end of the stem provided with threads (10 threads to one inch, length of the threaded part of the stem being 350 millimeters), and thus the outer diameter of the rubber ring can be adjusted if worn out of gauge. The brass ring (h) is tightened up to the bottom of the swab, in order that it may protect the whole tool from injury, if it occasionally hits the rocky bottom of the hole.

The upper end of the swab is provided with the tool joint to which jars (of 0.6 meter stroke) can be connected. A sinker bar, four to six meters long, comes above the jars, and finally the whole outfit is attached to the swabbing line by means of a stiff socket. Very often the swab, jars, and sinker are all welded together to avoid tool-joints which easily can loosened up, and cause a fishing job.

Swabs are manufactured for four, five, six and seven-inch casing[2]. The last size can also be used in eight-inch casing, simply by changing the seven-inch rubber ring to the eight-inch one. Larger sizes are not used, also swabbing through small tubing is unknown.

Besides the above described swab there are several other designs of swabs in use. Some of them are so constructed that they enable better by-passing of gas when the swab is on its downward trip. Their construction differs very little from that of the first swab which also satisfactorily can be used in wells with high gas production.

Another type of swab which for the last few years has been appearing on the market, is a combination of the ordinary swab with the deep well pump. This type is made in several different forms, all, however, are based on the same principle. The pump barrel, about four inches in diameter and some three meters long, is attached to the lower end of the regular swab. Inside of the barrel there is a

(Continued on page 78)

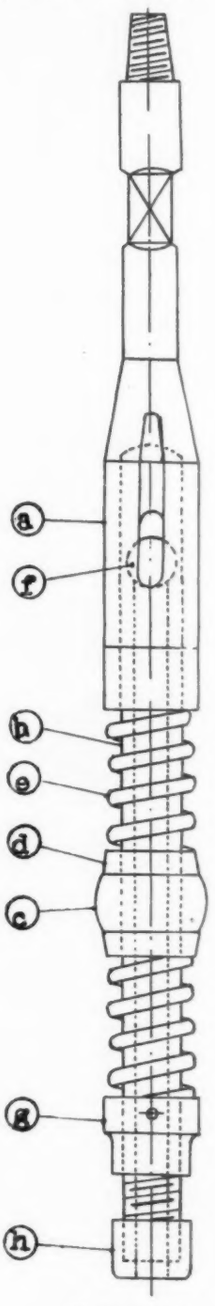


Figure 1.

[2]Casing used in Poland is made in entirely different sizes than those in the United States. It is measured in millimeters, for abbreviation, however, it is termed in inches.

Soviet Plans Call for 5,600,000 Feet of Hole in Five Years

LOS ANGELES. — Of the 5,600,000 feet to be drilled this year in Russia, it is planned to core 1,400,000 feet, according to V. M. Korobovkin, director, Amtorg Trading Corporation, Technical Bureau of Petroleum, Coal and Mining Industries of the Soviet government, who attended the Oil Equipment & Engineering Exposition in Los Angeles.

Mr. Korobovkin, as is the established custom with engineers and technicians from the Union of Socialistic Soviet Republics (Russia) conducted his interview with R. L. Dudley, publisher of *The* OIL WEEKLY, through the medium of written questions and answers. Following is the interview:

Question:

"What are your impressions of the Oil Equipment and Engineering Exposition?"

Answer:

"In reply to your question I may say that in 1928 I had the opportunity to see the Tulsa oil field equipment exposition and comparing exhibits of today it is surprising to see so rapid progress in engineering and development of machinery in the United States of America. At this exposition there are many new, interesting and practical devices, and as a whole the exposition is very interesting, but I notice with regret the absence of equipment manufactured by such large firms as National Supply Company, Emsco, Oilwell Supply Company and others.

Question:

"Can you give me the information as to the comparative amount of drilling done with rotary, cable and other percussion methods?"

Answer:

"For the present year it is planned by the Soviet Oil Industry to drill 2,500,000 feet of holes chiefly by rotary method; also by turbine drilling (method of Kapelushnikoff) and some by cable drilling."

Question:

"Have there been any new fields discovered in U. S. S. R. within the past four months?"

Answer:

"Among the new oil fields there is the Ural region oil field, discovered last year. This field is located near the chain of Ural Mountains. For the exploration of this field a new independent trust was organized, called 'URALNEFT.' The presence of oil in this part of the country gives good reasons to expect further discoveries of oil fields in the Ural region."

Question:

"What, briefly, is the 'five year program' of the oil industry in U. S. S. R.?"

Answer:

"In connection with the five year industrial program of the U. S. S. R. for the next year it is planned to drill 5,600,000 feet of holes, of which about 1,400,000 feet will be core drilling. The core drilling is to be performed by the newest American methods, and for this purpose the equipment will be purchased in America.

"The Soviet oil industry makes a large market for American manufacturers. The sale of American equipment to the Soviet oil industry may be considerably widened by the extension of credit by American firms to the U. S. S. R. The export of American oil equipment to the U. S. S. R. may also be facilitated by organizing in Soviet oil fields of American show rooms, demonstrating newest American methods and equipment, where Soviet engineers and workingmen will be able to familiarize themselves with such equipment."

Question:

"Are there any universities in U. S. S. R. giving courses specializing in petroleum technology?"

Answer:

"At the present time in the U. S. S. R. there are four major universities where special courses in oil technology are provided. Also there are a number of technical schools specially designed to provide technical training for Soviet oil field workers in all branches of the industry. Besides the technical education, a number of Soviet oil field engineers are delegated annually to the United States, where they are studying American methods and equipment. Also a group of prominent engineers was invited as consulting engineers. Among the engineers who visited U. S. S. R. in such capacities were Professors Beckstrom, Rodgett, and Jones, and at the present time Mr. Bell and Mr. Burrell are in the U. S. S. R. Besides the above mentioned men there are in U. S. S. R. now a number of engineers and workingmen from the United States."

V. M. KOROBOVKIN

Director Amtorg Trading Corporation, Technical Bureau of Petroleum, Coal and Mining Industries of the Soviet

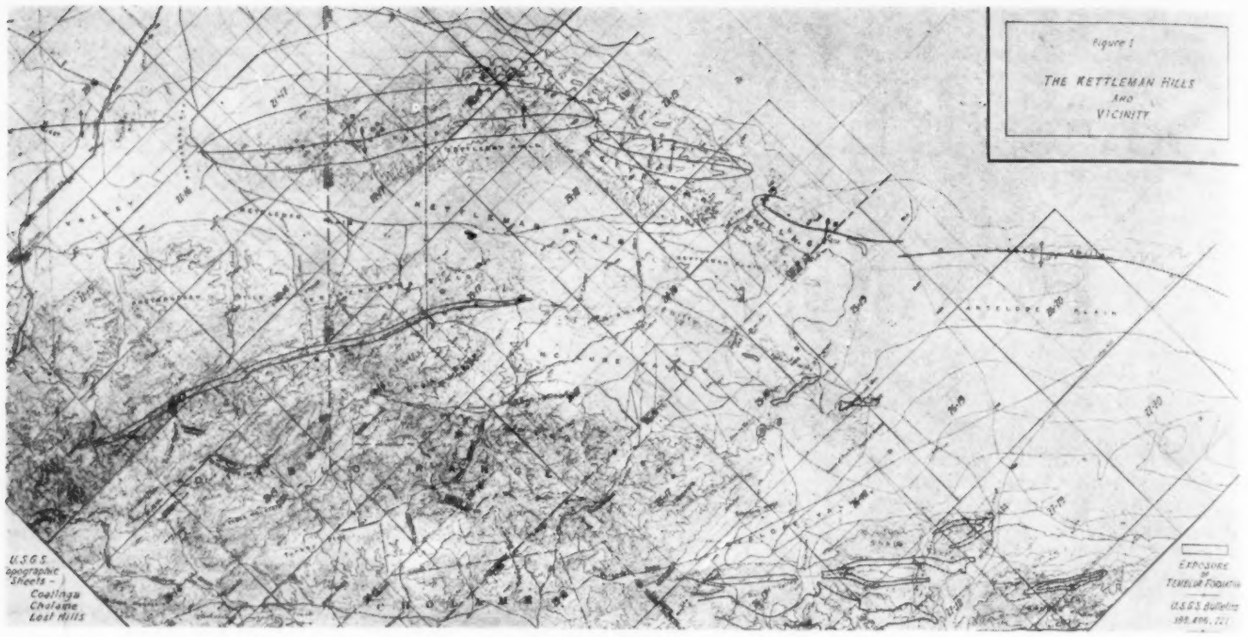


FIGURE 1
Kettleman Hills and vicinity

The Problem of Drainage *at* Kettleman Hills

By STANLEY C. HEROLD

MARVELOUS and magnificent though the Temblor reservoir at Kettleman Hills may be from the point of view of production possibilities, it is none the less subject to the same natural laws of performance as those displayed within the smallest, or the weakest, producing zone in this state. The pressures are intense, the oil and gas are great in quantity and high in quality; yet the magnitude of mere numbers in themselves should not confound us in our attempt to analyze subsurface conditions in this otherwise spectacular reservoir.

Of course we cannot inspect personally all parts of this or any other reservoir. The best we can do is to observe carefully the performance of the wells under the various conditions to which we may subject them. It is to be supposed that we already have a fair idea concerning the general stratigraphic and structural features of the region—at the surface and below— likewise definite ideas concerning the lithologic features of the producing zone and its adjacent formations. We shall have, then, the general setting for our picture of the reservoir, a setting prepared by geological examination and subsequent conclusions by inference, and furthermore by laboratory tests performed upon core samples.

You are already familiar with a part of the picture. Let us look at it for a brief moment once more.

We see the exposure of the Temblor formation to the southwest of Kettleman Hills in the frontal hills of the Coast Ranges—a snake-like line on the map. It is the Reef Ridge, varying in altitude from 1500 to 2500 feet above the sea. At 10 places it is cut by streams which flow intermittently from the hills toward the plains. The average elevation at these stream-cuts is 1600 feet above the sea. At Tar Canyon, about 4½ miles southeast of the Fresno-Kink County line, the cut stands at 1500 feet.

Temblor Formation At 7800 Feet

The Kettleman Hills structures are shown in outline. The border represents what is supposedly the lowest closed contour on the top of the Temblor formation at 7800 feet below sea level. A few conspicuous wells are spotted at their locations. As we all know, production at the present time is confined to the so-called North Dome. At the surface this dome varies in altitude up to 1370 feet above sea, rising from a plain of 800 feet elevation on the southwest, and a valley of 500 feet on the northeast.

There is a line drawn from Tar Canyon, northeastward, to the Shell-Armstrong Well 1, paralleling the county line. From the canyon to the well the distance is approximately nine miles.

A favorite indoor game of the geologist is to draw inferences respecting subsurface conditions in interesting regions. Let us then specify the aforementioned line as a line of vertical profile and we have as a result, Figure 2.

Except for the setting this picture may well be described as a bent glass tube filled with sand, supported by brackets on the laboratory table. If we have put in sufficient water at the upper end, and if we have provided an auxiliary vertical tube at the arch of the main tube, then such an opening provided by the vertical tube should produce any air, and along with it any water vapor or water as spray, which may have become trapped on the arch. Perhaps Nature has filled the Temblor formation with stream water at Tar Canyon. The water supply in intermittent, but certainly sufficient time has elapsed since the upheaval of Reef Ridge for the accomplishment of such a task, provided leakage from the system is nil or at least incapable of over-balancing the

[1]Paper read before California Section American Petroleum Institute Division of Development and Production Engineers, Los Angeles, March, 1930, by courtesy of Union Oil Company of California.

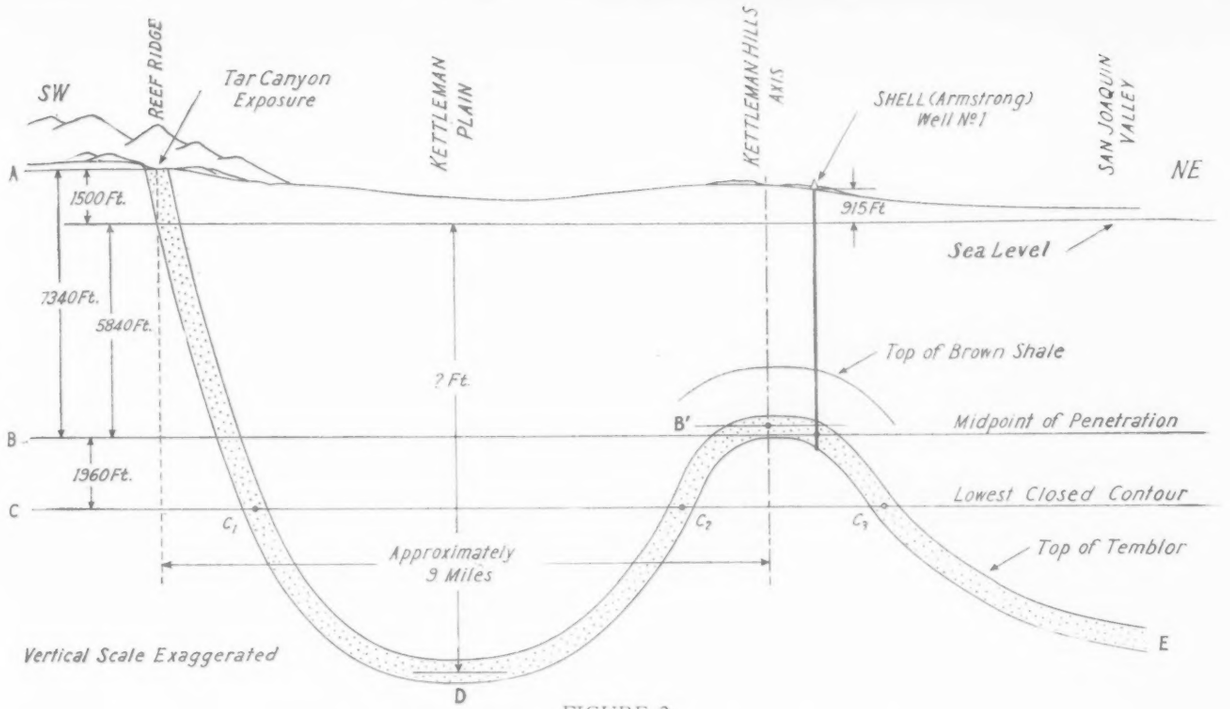


FIGURE 2

Profile section from Tar Canyon to Shell Armstrong well

supply of water. As to leakage, all we can say is that there is no evidence of it within the limits of Figure 1 as previously shown. We do not know whether or not there is leakage within the formation itself, beyond, and therefore past, the point "E" now before us. But if the formation is filled to the top at Tar Canyon, why should there not be an agreement between its calculated pressure at 7340 feet vertically downward from the exposure, and the pressure calculated from the weight of the mud-fluid in the Shell-Armstrong well at the time it broke loose with production on tests?

Without attempting to give the details of such calculations, let me say that with water of a specific gravity 1.025 on account of soluble salts in the sands of the Temblor formation, and the weight of the mud-fluid at 72 pounds per cubic foot we have, respectively, the pressures of 3261 and 3220 pounds per square inch.

Data Available On Eight Wells

We should not rely upon calculations with respect to one well alone; it would be better if we used all wells—there are now eight of them for which the data are available. In six wells, including the Shell-Armstrong, the agreement is within 100 pounds per square inch. With the seventh well the pressure calculated from the mud data is 538 pounds too low, while in the eighth it is 550 pounds too great. At the present time we may give greater credit to pressure values calculated from the outcrop. The agreement among six sets of calculations is significant; we may safely assume that the pressures at the wells are due to a hydrostatic head provided by water in the Temblor formation.

The wells produce under conditions of extreme pressures. The fluids are gas, vapor and atomized oil. Together they weigh little more than air; there is no column of liquid in the hole during production—liquid which in most oil fields partially offsets the formation pressures by its weight. Here the pressures at the head of the well are almost equal to the pressures at depth.

We can classify the Kettleman wells as gas wells. In so designating them we do not slander them or bring into question their economic worth. Our calculations, based upon physicochemical tests, show that a very small portion, in fact two per cent, of the pore space in the

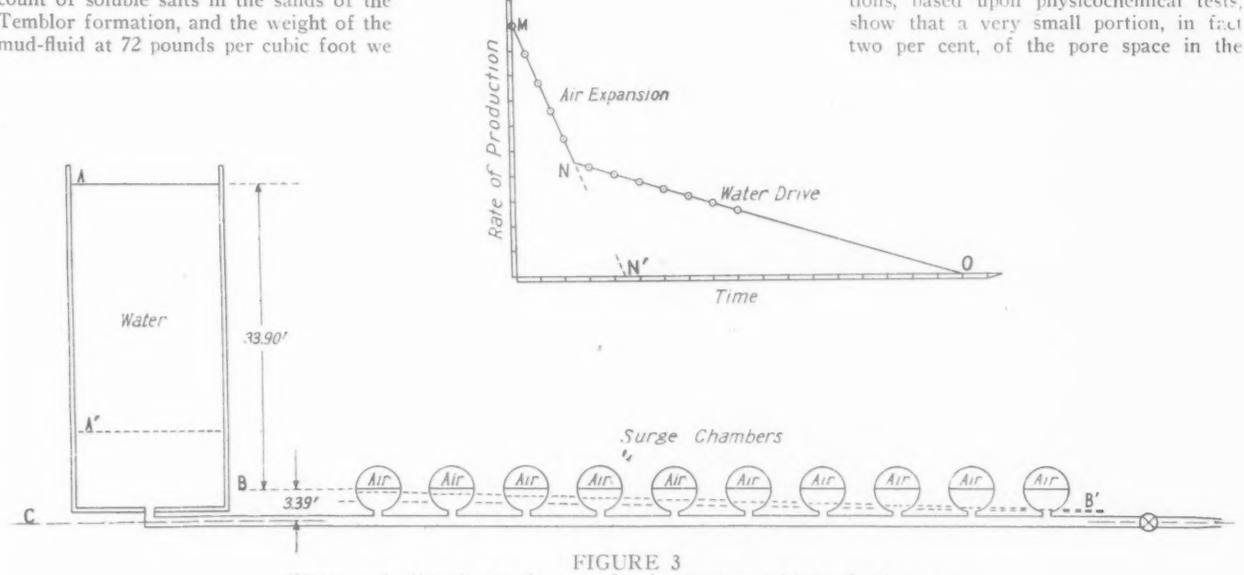


FIGURE 3

Water tank, flow line and surge chamber system, with production curve

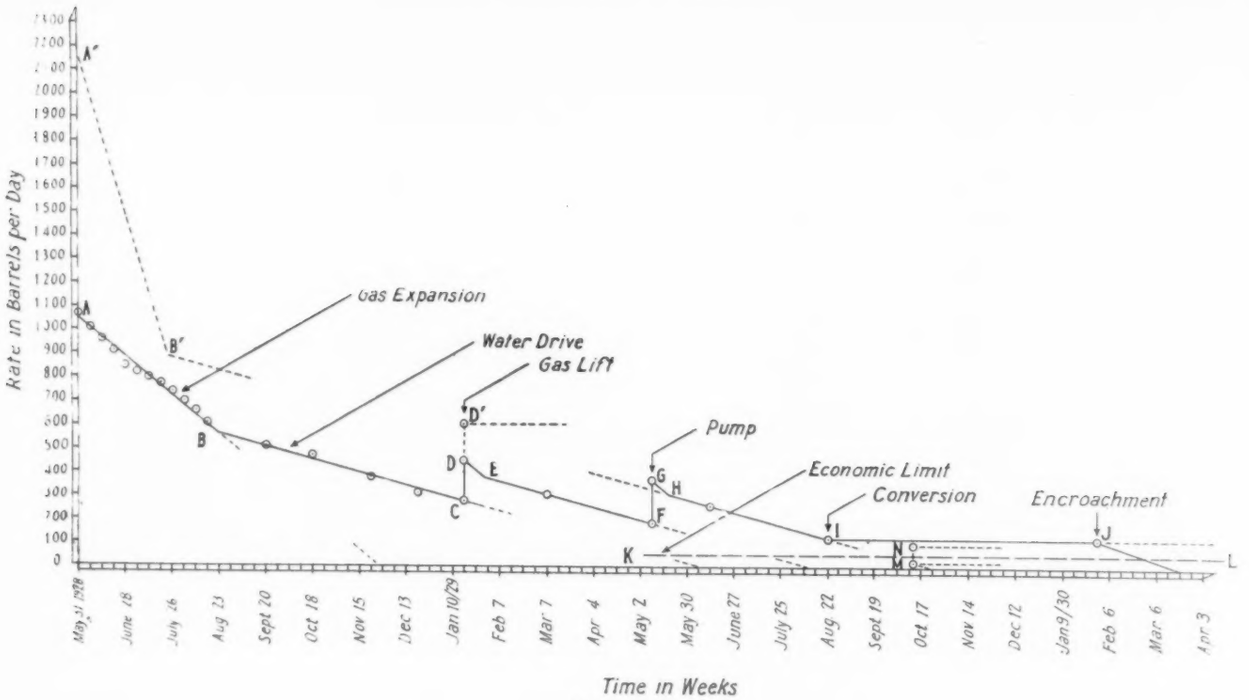


FIGURE 4
Production curve for Long Beach Bixbee zone

sands is occupied by liquid. The average porosity of the formation is 12 per cent. We may be definitely assured that the pore-spaces proper are filled with gas and vapors of gasoline and oil, while the canals connecting the pores hold the oil, with its gas and vapors in solution. This oil is atomized by the rapid linear motion of the gas toward the open well, and it emerges in the form of spray to be caught in traps.

If by-passing is taken in its accepted sense, then it may be said that all oil production on the North Dome takes place in virtue of by-passing, for it is by-passing alone which can cause spray.

Fluids In Two Phases

Before the discovery well was drilled in, the fluids within the reservoir existed in two phases—the liquid phase and the gaseous phase. Naturally, with a release of pressure offered by the open well, the constituents of these phases alter somewhat. If the fluids had been encountered at 9400 feet below sea level, approximately 3700 feet below the position actually encountered, we would have found only the gaseous phase in existence. While at such a depth the greater pressure tends to form a single liquid phase, the greater temperature counteracts this tendency completely and goes to an excess sufficiently to vaporize all. From this we may conclude that if the oil and gas, on its migration into the dome, passed at depths equal to or greater than 9400 feet below sea level, they passed in gaseous phase alone. Such an event seems clearly to have happened. The oil as we find it today is merely condensed vapor.

Oil and gas do not come directly from the main body of the sand into the well, but the compact, hard, fine-grained sands which constitute perhaps over 90 per cent of the entire formation, first produce into the coarser, more permeable interlying strata, while these in turn carry the fluids to the well. Neither should this fact lessen our regard for the economic value of these wells.

Probably there will be no dissension concerning the origin of the pressure at Kettleman Hills. Nor will there be any disagreement concerning the fact that it will decline in its intensity during the course of continued production. Such a decline has already taken place. We see its effects in a decreased rate of production at the wells. Thus far the decline is small; it will be greater as time goes on, at least for a number of years depending upon the number of wells brought in on production. Like dipping soup out of the kettle, the faster we ladel, the faster the pressure head on the bottom of the kettle declines. We can not eat the soup and maintain its level in the kettle at the same time.

Decline Involves Water Encroachment

What does the decline in pressure mean? Are we to infer that the height of water in the formation near the outcrop decreases with production? Not in all oil and gas fields does it do so; in fact some formations must be producing without any such column of water. How are we to know about this particular field? The matter is important, for if it is true that the height declines we can say definitely that the water surrounding the pool at Kettleman Hills will encroach upon the field and eventually flood the entire area. If it does not decline, the edge water will not encroach upon the field, but it will remain fixed in position, as it does in the Cushing field, Oklahoma, in the Salt Creek field, Wyoming, and in the Bradford field, Pennsylvania. In the latter field we are flooding artificially, because Nature will not do it for us.

Clearly, then, this matter of declining water level at or immediately below the outcrop of the Temblor is closely connected with the subject of water encroachment, and furthermore, it is closely connected with the subject of percentage recovery from the field. Water encroachment means high recovery, 75 to 95 per cent, while absence of encroachment means lower recovery, 10 to 60 per cent under the ordinary procedure in development. With water encroachment a string of wells, say 10 or 20, along the axis of the North Dome will produce all the oil and gas recoverable from the structure. Without water encroachment we must drill the entire structure, with wells more or less regularly spaced, in order to get a fair proportion of the recoverable fluids.

It is agreed that we can not watch a possible decline of the water level at the exposure of the Temblor. We may drill wells, perhaps, down a little from the exposure, and note any lowering of the water in the casing. This would require new wells from time to time, deeper ones as the years go by. It would be an expensive procedure, yet satisfactory, for observations would be direct. There is another method of procedure less costly, although indirect. It depends upon a fair knowledge of theoretical mechanics, a subject of study originated by Galileo and Isaac Newton some 300 years ago. Many engineers are not familiar with the principles of theoretical mechanics, and consequently they do not consider its indirect methods at all satisfactory.

Briefly, the story of the theoretical mechanics of the oil and gas well is the story

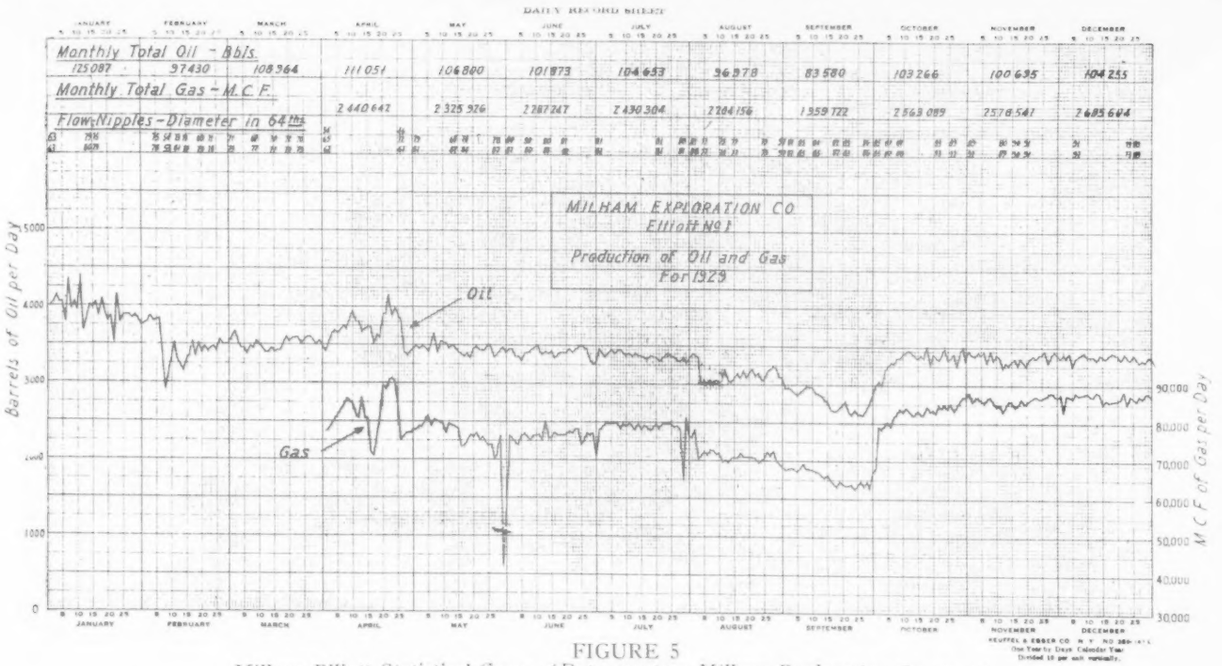

DAILY RECORD SHEET
Monthly Total Oil - Bbls.
125087 97430 108964 111051 106800 101873 104653 96978 83580 103266 100695 104255
Monthly Total Gas - M.C.F.
2 440 642 2 325 976 2 287 247 2 430 304 2 264 156 1 959 722 2 563 089 2 578 541 2 685 604
Flow-Nipples - Diameter in 64ths
MILHAM EXPLORATION CO
Elliott No 1
Production of Oil and Gas
For 1929
Oil
Gas
Barrels of Oil per Day
M C F of Gas per Day
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

FIGURE 5

Milham-Elliott Statistical Curve. (Data courtesy Milham Exploration Company)

of the production curve. It is time we give these curves their full interpretation. We must admit, of course, that a complete interpretation requires the evaluation of physical constants pertaining to the particular oil and gas with which we are concerned, and for such evaluations we must depend upon the physical chemist. Curves show us events and conditions within the reservoir, while physical constants permit us to compute quantities within the reservoir. The question of drainage is largely the question of the production curve.

Let us inspect the diagram of an apparatus easily set up in a laboratory; it represents a water tank, flow line and surge chambers, with the production curve of the system. The chambers contain air before the tank is filled with water. With the valve closed at the right, and with the tank filled to "A," the air in these chambers occupies one-half its previous volume; the water line stands along a line "B."

The air in the chambers possesses energy—energy derived from the water that is compressing it. It has not mechanical energy that can be said to be intrinsically its own, for that which it has is due entirely to the water. If we should connect one or more of these chambers with an air compressor, the best we could do would be to increase the head by the amount "B" to "C." Therefore air would simply travel to the tank and escape through the water.

Expanded Air Performs Work

The air in the chambers can perform work, if given the opportunity to expand. In this capacity it may be said to act as an agent for the water, inasmuch as it expends energy which rightfully belonged to the water. To get this performance of work we can open the valve and allow production to take place. Now the air expands in each chamber according to a

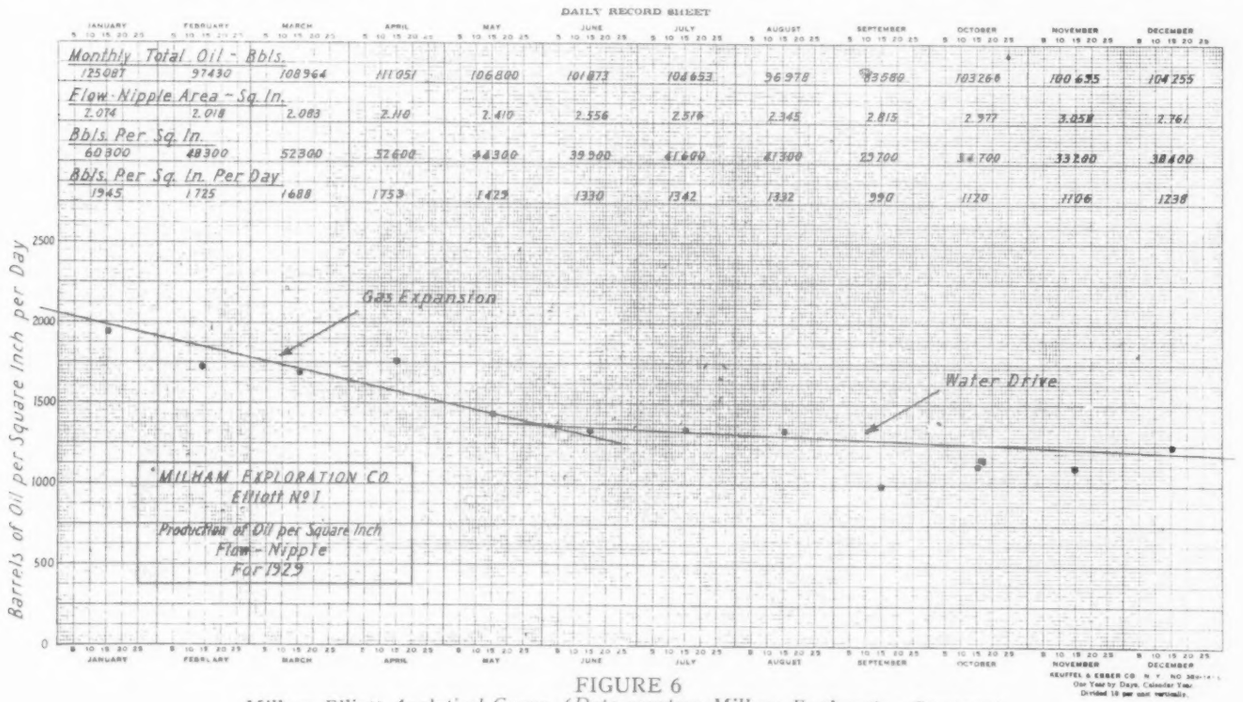

DAILY RECORD SHEET
Monthly Total Oil - Bbls.
125087 97430 108964 111051 106800 101873 104653 96978 83580 103268 100695 104255
Flow-Nipple Area - Sq. In.
2.014 2.018 2.083 2.110 2.410 2.556 2.516 2.345 2.815 2.977 3.058 2.761
Bbls. Per Sq. In.
60300 48300 52300 52600 44300 39900 41600 41300 29700 34700 33200 38400
Bbls. Per Sq. In. Per Day
1945 1725 1688 1753 1425 1330 1342 1332 990 1120 1106 1238
Gas Expansion
Water Drive
MILHAM EXPLORATION CO
Elliott No 1
Production of Oil per Square Inch
Flow - Nipple
For 1929
Barrels of Oil per Square Inch per Day
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

FIGURE 6

Milham-Elliott Analytical Curve. (Data courtesy Milham Exploration Company)

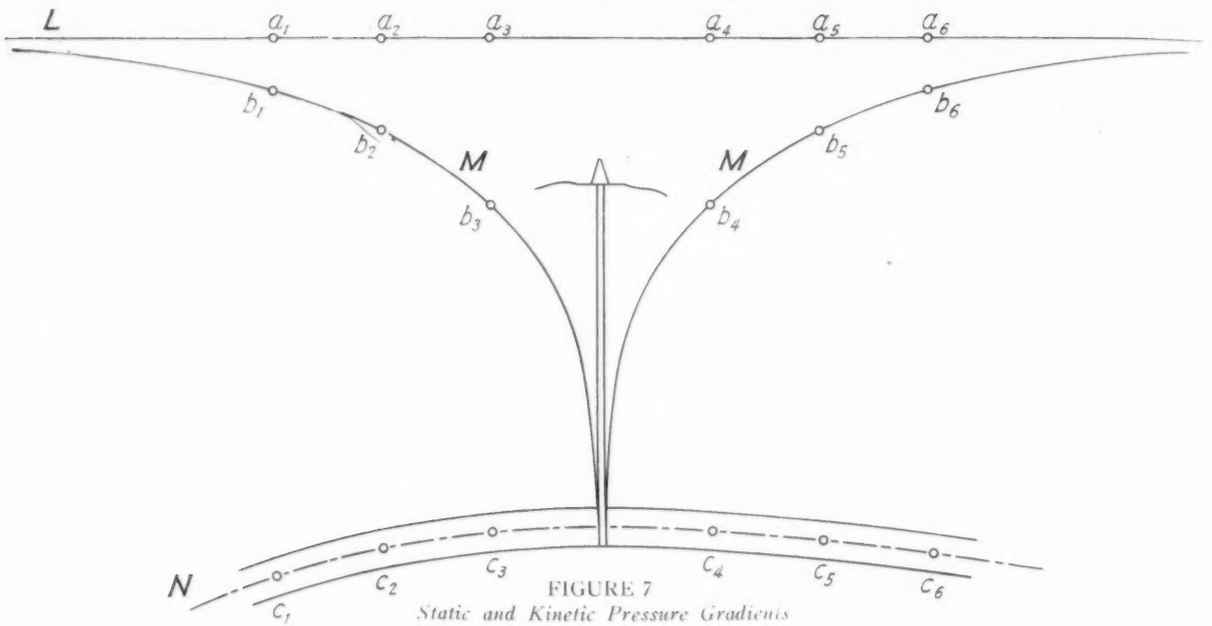


FIGURE 7
Static and Kinetic Pressure Gradients

kinetic pressure gradient, the upper line at "B," which in this tubular system is a straight inclined line. During this expansion we obtain data for the curve "MN." It is a straight inclined line appearing to approach zero production at a point "N." During this expansion, "A," if it moves at all, moves very little. As soon as the kinetic gradient is established the internal conditions of production change. No more work is performed by the air in the chambers; all work is now performed by the water; "A" lowers in accordance with production, and "B" lowers correspondingly with "A." At a position "A" we find a gradient such as the lower line at "B." The air in the chambers now expands only to accommodate itself to lowered pressures exerted by the head of water. The system produces solely by water drive, and the data of production gives us the straight inclined line "NO." While the air is expanding and performing work the apparatus can be said to be in flush production, whereas during the water drive it can be said to be on settled production.

127 Producers In Bixbee Zone

In Figure 4 the line "ABC" represents the average of 127 producing wells in the Bixbee zone of the Long Beach field. The curve is drawn from actual field data. "AB" appeared to approach zero production November 25, 1928. It turned, however, to "C" in a direct line for zero production at June 6, 1929. Inasmuch as the productive formation contains both oil and gas, and as the gas can act in the manner of the air in the preceding figure, we are justified in claiming that "AB" represents production on gas expansion, where edge water, if it moves at all, moves very little, and that "BC" represents the water-drive, where water is alone in causing production; consequently where edge water must encroach upon the pool before the oil can be obtained.

There is a difference between the systems of the two figures to be fully recognized. Air in the surge chambers stays where it is during the process of production, expanding as already noted. Gas in the Bixbee zone travels toward the well. Though the surge-chamber effect applies as well to one system as to the other, the "chambers" in the natural system are within the zone itself. In either system, the expansive fluid at a fixed distance from the orifice attains a state of equilibrium in accordance with the kinetic pressure gradient (a surface with the shape of a spout in the natural system), and whether it is the same fluid or continually new fluid which adjusts itself to this gradient makes no difference. Expansion takes place without the performance of work.

January 17, 1929, the conditions of production were gradually altered. Natural flow at many of the wells had reached an undesirable low point, and one well after another was placed on the gas-lift. The remainder of this figure can not concern us here. The drawing was prepared for another paper, wherein an attempt was made to explain the function of gas in the production of oil in California. The question which confronts us now is: Does the curve for wells at Kettleman Hills display the same feature? If it does so, we may be equally assured of encroachment, for the curves of any wells where encroachment is impossible are quite different in a well-defined way.

Milham-Elliott Well Record

This is a daily record of production from the Milham-Elliott 1 for the year 1929. Undoubtedly it is a faithful record; therefore it has statistical value to the company, although it has the appearance of the teeth of an old saw. Perhaps no two of us, if allotted the task, would draw the same straight line to represent the average production curve. It appears to indicate a decline, though of that we can not be certain. Furthermore, flow-nipples, or beans, were adjusted from time to time and these manipulations affected the curve. From the point of view of theoretical mechanics, nothing of definite value can be deducted from it. It is a simple matter, however, to draw a more satisfactory curve.

Here the monthly total in barrels of oil is reduced to barrels of oil per square inch bean per day. Now we can draw the customary two straight lines and proceed to interpret the situation.

Up to June 1, production took place solely by gas expansion beginning in the immediate vicinity of the well and progressing outward as time went on.

Pressure Intensity a Plane Area

Previous to the opening of the well, on and before October 5, 1928, the pressure intensity in the vicinity of the well, if drawn to scale, would display a plane area represented by the level line "L." That is to say, if we measured, or could measure, the pressure at various points "c_1," "c_2," "c_3," etc., within the reservoir, and adopt a proper scale between pounds per square inch and an inch vertically on the drawing, we would locate "a_1," "a_2," "a_3," etc.

After the well started to flow a measurement of the new pressures would show a drop to points "b_1," "b_2," "b_3," etc. The line "L" fell to the lines "M." These lines describe a surface shaped like a spout or morning-glory blossom. It is the kinetic pressure gradient previously mentioned, accompanying flow which takes place from all directions radially about the well. The spout grew in depth and extent from October 5 to June 1. This was the well's period of flush production. The drawing here shows it in its mature state. On June 1 it was fully grown; the pressure exerted by the column of water in the formation would not permit further growth. The water began to move down from the exposure and edge water began to encroach upon the pool, while the spout maintained its full size. The well is on settled production.

When the Continental-Elliott well 12-8 was opened in September the Milham-Elliott spout was disturbed. A bigger one became necessary. The Continental-

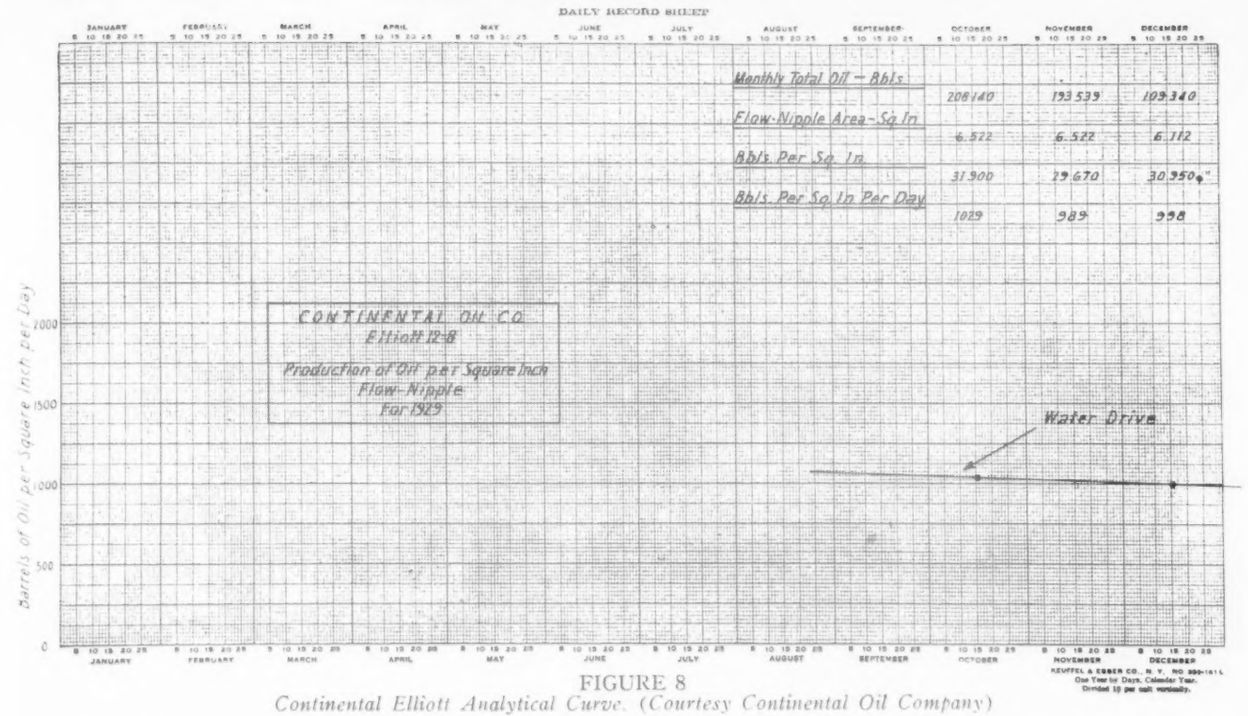

DAILY RECORD SHEET
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
Monthly Total Oil – Bbls 208140 193539 109340
Flow-Nipple Area-Sq In 6.522 6.522 6.112
Bbls Per Sq In 31900 29670 30950
Bbls Per Sq In Per Day 1029 989 998
CONTINENTAL OIL CO
Elliott 12-8
Production of Oil per Square Inch
Flow-Nipple
For 1929
Barrels of Oil per Square Inch per Day
2000
1500
1000
500
0
Water Drive

FIGURE 8
Continental Elliott Analytical Curve. (Courtesy Continental Oil Company)

Elliott well punctured its side and as a result we see points too low for three months. On the fourth month—December—the wells were in agreement and the point raised to its proper position.

Gas expansion was followed by water drive. What happened for the Continental-Elliott well?

No Record for September

There was no record for September, inasmuch as the well was out of control. It required eight months for the Milham-Elliott well to build its spout. Why is there no sign of a corresponding period here? Two reasons: First, the well built its spout very rapidly when it was blowing wide open, and secondly, it did not have to build a complete spout, for the Milham-Elliott well had nearly a complete one ready for it. All the Continental-Elliott well had to do was to excavate on side.

Let us not take these spouts too literally. They are only representations of pressures; they do not designate a liquid level, though they do designate the amount of space occupied by the expanded gas as the well is approached from the side.

There are now four mutually offsetting wells at this locality on the dome, and three of them are producing. What would take place if they were all closed in? The compound spout they now possess would fill in once more, and a pressure diagram, about eight months after the closing, would again show a level line like "L" in the preceding figure, though a trifle lower on account of the decline in the head of water. Water encroachment would continue for these eight months during the filling process, then cease. Another opening of the wells would cause a repetition of the process; first gas expansion, then water drive. To illustrate this feature we may cite the February test for the so-called potential flow at Santa Fe Springs. By curtailment the size of the spouts in the various zones had been reduced. On opening the wells the gas once more expanded to form larger spouts. Curtailment again after the test forced the spouts to become smaller. Under any conditions the spouts acquire a state of equilibrium denoting encroachment of edge water.

However we may manipulate the wells to the spout changes in size, and consequent changes in the advancement of edge water come later.

Milham-Elliott Well Has Spout

We have noted that from the first of June until September the Milham-Elliott well possessed an individual full-grown spout. The space occupied by this spout was sufficient to hold approximately 971,500 barrels of oil and 21,956,000,000 cubic feet of wet gas measured at atmospheric pressure. Reduce these quantities to pore space and formation space occupied under pressure in the formation and we have the cubic contents of the spout as 971,500 barrels of oil; 2,345,220 cubic feet of pore space, and 117,261,000 cubic feet of formation. We know its geometrical shape; consequently we may learn, if desirable, the quantitative features concerning this provisional effect of production on the pool in the vicinity of the well. More important, however, are the irreparable effects of water encroachment at the edge of the pool.

The General Petroleum Company's Ochsner 26-2 is not open. Whenever it may be opened it will produce for a time on gas expansion, then the edge water will start to move for it. Each well will have its own cycle; each affects the edge water separately.

We need not expect the edge water to move regularly according to contour lines on the structure. It will crawl up the sides more rapidly nearest the wells. The faster we produce, the more rapid the ascent. Nature will try to help us. She will pull the water line down in an attempt to straighten it out to a level. If we produce slowly and carefully she will help us considerably.

If it were not for this localized ascent of edge water on the dome, one well at the crest would be sufficient to drain the entire pool, given sufficient time. As matters stand, 10 or 20 wells along the axis would be better, for the approach of the water would be more nearly in accord with the contour lines of the dome.

Variation in Gas-Oil Ratio Slight

In consideration of the distribution of oil and gas in the reservoir we may believe that any variation in the gas-oil ratio will be very slight over the structure. In this respect the Kettleman Hills reservoir can be expected to differ from other reservoirs in this state. The oil in the canals between pores is difficult to remove by the spraying action of the gas. It will cling in thin films as long as it can to the solid walls. The encroaching water, however, can remove it, for there is a greater attraction between quartz and water than between quartz and oil. If edge wells are drilled and placed on production, it is probable that the approach of edge water will be foreshadowed by a sudden decrease in the gas-oil ratio, since the water will gather oil before it and sweep it toward the well.

We do not know the size of the pool as yet. All that can be said is that it does not extend below the lowest closed contour of the domal structure. This contour is approximately 35 miles in circuit. The thickness of the formation is not known; already penetration has reached 1000 feet. If we wish to assume these values to be safe approximations we can calculate the yearly encroachment of the water in square feet, and distribute this area according to our fancy at the edge-line near the wells. In this way we obtain a fair idea respecting the rate of encroachment

upon the pool; for we know the total amount of oil and gas produced from the wells since June 1, 1929, and the physical chemist can easily compute the space such production occupied at depth, under the known pressure conditions. Our calculation of course must pertain to the period subsequent to June 1, since the water started to encroach at that time as: 695,300 barrels of oil; 83,923,400 cubic feet of pore space; 699,360,833 cubic feet of formation space, and 699,361 square feet of area.

Encroachment Confined to Water Front

Most of the encroachment, let us say, is confined to a water front 1½ miles in length. This would be: 88.3 feet advancement in seven months, and 151.4 feet advancement in 12 months.

This is the yearly advancement on two sides of the pool. Arbitrarily we may divide the amount between the south-west and north-east sides in the ratio of 2 to 1 as: 100 feet approximately on the "SW." and 50 feet approximately on the "NE."

These are the yearly effects of the Milham-Elliott well alone. The method of calculation is somewhat crude; nevertheless it does give us an idea of the order of magnitude of encroachment.

Admitting that we do not know the exact acreage covered by the pool, we can however calculate the recovery per acre as: 43,560 square feet for the area; 43,560,000 cubic feet of formation space; 5,227,200 cubic feet of pore space; 32,485 barrels of oil; 734,185,000 cubic feet of wet gas; 17,655 barrels of gasoline; and 50,140 barrels of oil and gasoline.

Perhaps we are safe in estimating the proved acreage at 9340 acres. We then have: 303,420,000 barrels of oil; 6,857,290 cubic feet of wet gas, and 164,901,540 barrels of gasoline.

There are 15,160 additional acres which may prove to be productive, bringing the possibilities of the entire reservoir to: 795,779,460 barrels of oil; 17,984,620 cubic feet of wet gas, and 432,487,284 barrels of gasoline. These figures are all based upon 1000 feet of productive formation and 75 per cent recovery.

The proved acreage lies within the contour 6000 feet below sea level on the top of the Temblor formation, and the possible acreage extends from here to the contour 7800 feet below sea level. Let us for the present say that the probability of striking oil at the 6000-foot contour is 100 per cent, while the probability at the 7800-foot contour is zero; then the probability between these contours ranges according to depth.

Summary

The problem of drainage is but one of many problems concerning subsurface conditions in this reservoir. Much information is already at hand with respect to the physico-chemical nature of liquid and vaporous phases throughout the range of high pressures and high temperatures existing at depth on the dome. I regret that we can not consider these additional features this afternoon, even in so far as they will affect a rational development of the field.

Drumright A. P. I. Chapter Discusses Treating of Oil

DRUMRIGHT, Oklahoma. — "A treating plant is generally a matter of cost, since practically all chemical treating plants will treat oil to pipe line specifications," stated Paul Guiron, Shell Petroleum Corporation, in addressing those present at the regular monthly session of the Drumright, Oklahoma, chapter of the American Petroleum Institute Division of Development and Production Engineering.

The total cost of everything determines the efficiency of the plant, in which must be considered the cost of erecting the plant, the loss of gravity of the crude, cost of chemicals, labor, fuel, etc., according to Guiron.

"The erection of the treating plant is the first item of consideration," continued Guiron. The amount of money to be expended on a plant and its size depend upon the amount of production from the property. Some properties with large production can pay for an elaborate treating system, while others with small production must depend upon cheaper plants. Where production is small the use of fuel, chemicals, labor, etc., must be carefully handled.

Following the discussion of Mr. Guiron, R. R. MacDonal, of the Shaffer Oil & Refining Company, gave a most interesting and educational discussion of the various ways and means of treating oil. He took up carefully and thoroughly the use of settling tanks, boiler wash methods, chemicals, Dutch ovens, treating in the hole, electric dehydration and several others. MacDonal illustrated each of these methods by drawing the systems on a blackboard.

In the boiler wash system a common oil field boiler is used as the heating plant, the oil being introduced into the front end of the boiler and coming out at the top of the back part after being heated to a point to break up the emulsified oil. The Dutch oven is a simple method of heating water in a tank, probably a 250-barrel one as this is used more often where production is small. Oil is spread around in this hot water, getting sufficient heat to accomplish the settling of the water, while the oil rises to the top and is drained off.

Treating in the hole is a rather new method, where chemicals are dumped into the hole between the tubing. Electric dehydration is the use of electricity in breaking up the emulsified oil. The electricity causes the globules of water to jump around and when they hit each other, they break and join together. This process continuing until the gobules have enlarged until their weight is greater than the oil pressure around them and they drop to the bottom of the tank.

In preventing the loss of gravity in oil being treated both Guiron and MacDonal suggested that the stock tanks be placed far enough from the heating plant to give the oil sufficient time to cool somewhat. This will prevent large losses of gravity, which otherwise might be costly.

Following each of the talks a general round table discussion was held with a number of men participating. J. S. Warren of the Maloney Tank Company spoke on the history of the bolted tank and brought its life up to the present A. P. I. specifications and the benefits derived from the standardization of tanks.

Line Pipe Protection Institute Formed

The Underground Pipe Protection Institute was formed at a meeting of representatives of 11 manufacturers of materials for protecting underground pipes against corrosion, at Tulsa, March 17. The object of the organization as expressed in the constitution is as follows:

To create a medium through which the members may establish authoritative relations with organizations studying the subject and the economics of the protection of underground pipe against corrosion i.e., Bureau of Standards, American Petroleum Institute, American Gas Association, American Water Works Association, and similar technical organizations.

To promote a better understanding of the problems surrounding the subject and the economics of the protection of underground pipe against corrosion.

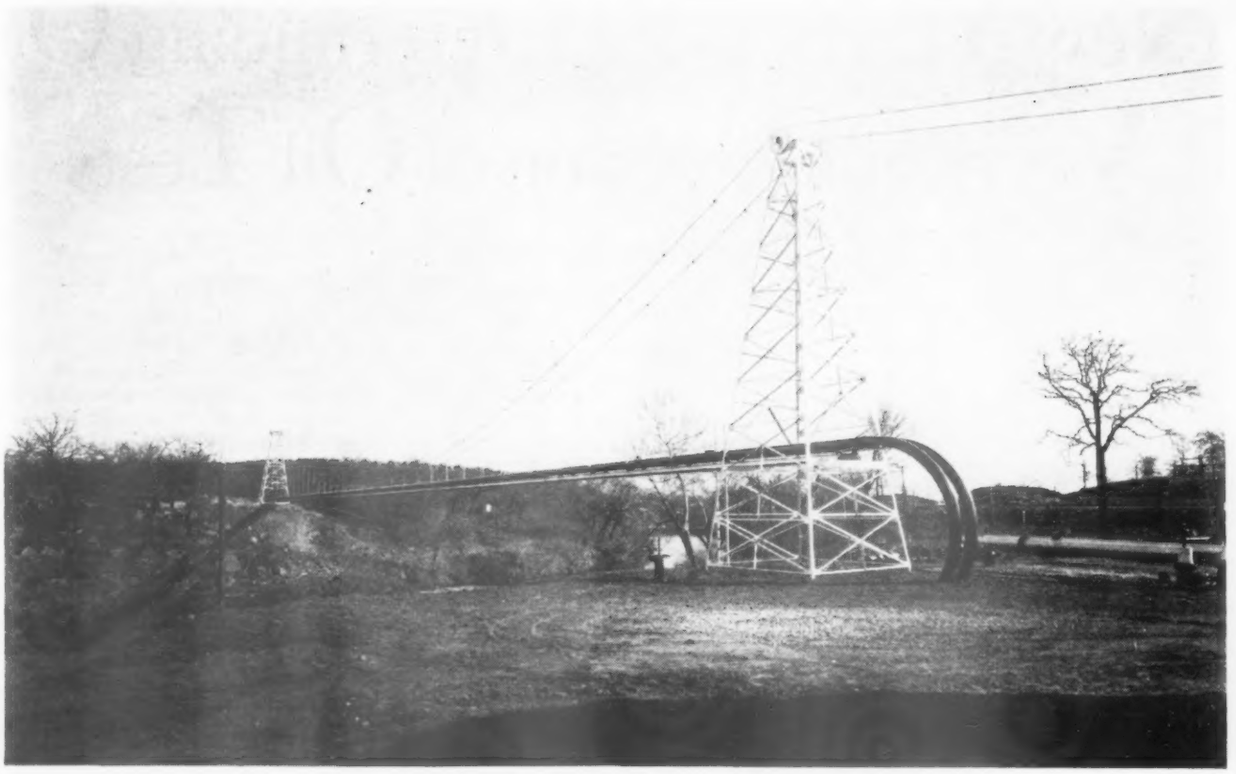
The advancement of the interests of its members and the establishment of friendly relations with the members of technical societies interested in the subject and the economics of the underground protection of pipe.

To establish and encourage etchical practices within the industry.

The officers of the institute are as follows: President, E. M. Converse, Dearborn Chemical Company, Chicago; vice president, E. S. Browning, Hill-Hubbell & Company, Division, General Paint Corporation, Chicago; secretary-treasurer, W. H. T. Thornhill, Wailes Dove-Hermiston Corporation, New York.

These officers, together with Mr. E. V. Rinehardt, Johns-Manville Corporation, New York, and William H. Kershaw, The Texas Company, New York, constitute the board of directors.

The companies represented at the organization meeting were the following: Hill, Hubbell & Company, Division, General Paint Corporation; E. I. Du Pont de Nemours & Company, Inc.; McEverlast, Inc., The Barrett Company; Sherwin-Williams Company; Johns-Manville Corporation; Dearborn Chemical Company, The Arco Company; Wailes Dove-Hermiston Corporation; The Phillip Carey Company, and The Texas Company.



Suspension bridge carrying two main lines at Tallant, Oklahoma

Suspension Bridge *Eliminates Hazardous Under-River Crossings for* Pipe Lines

CITIES Service Gas Company set out some time ago as a part of the company's program to eliminate from its natural gas transportation service many of the hazards and maintenance problems of under-water river crossings. It has succeeded through the construction of suspension bridges above the high-water mark.

Late in December the company completed a large suspension bridge over Bird Creek, at Tallant, Oklahoma, which carries two main gas lines. Twenty-five men were employed for nearly three months in constructing the bridge.

The bridge, with a span of 340 feet, is composed of two fabricated steel towers on each bank of the creek. These towers support two 1⅝-inch steel cables, from which is suspended a fabricated steel deck-in gthat carries two extra heavy welded 12-inch lines mounted on rollers. The towers resemble small derricks and are riveted. The decking is also riveted solid. A cat-walk runs between the two lines. The bridge carries the lines four feet above the high-water mark.

The bridge is located above the station operating elevation. Gas from the discharge lines of the Tallant compressor station reaches the bridge through two 12-inch pipe bends. In addition to conveying the gas to the level of the bridge, the bends act also as expansion units for the lines.

It is a departure from former construction and insures safety for gas delivery lines during periods of high-water, which are common along Bird Creek. The lines are easily accessible should it become necessary to repair them, as the cat-walk between the two lines permit workmen to reach any point on the crossing and at the same time to work easily and quickly.

The bridge stands out as an artistic piece of work as well as a commercial investment against hazardous under-river crossings. The curves selected for the work are such as to derive a maximum strength without loss of grace. Motorists passing along Highway No. 11, between Tulsa and Pawhuska, are attracted by the beauty surrounding the bridge and Tallant plant and camp, through which the paved highway passes.

The construction personnel was drawn from the gas division of Cities Service Gas Company. The pipe line department at Tallant furnished the labor and the engineering division drew the plans.

Construction of the bridge was under the supervision of Charles J. Watson, engineer of the gas division, assisted by Harry McDaniel, pipe line division superintendent for the Tallant district.

New Machine for Determining Off Vertical Direction of Oil Tests

By WARREN BAKER
Staff Representative

SINCE the importance of determining the off vertical line of oil tests was called to the attention of the petroleum industry there has been much interest manifested in every new method or instrument developed for this purpose. A new instrument, that is proving to be no exception to this rule in the Mid-Continent region is being offered by Driftmeter, Inc., 616 Exchange National Bank Building, Tulsa.

About a year ago this company was organized to sell the original Driftmeter machine, which made a continuous reading on a chart as the instrument was being lowered in the hole. It now has a new machine, similar in its workings to the Driftmeter, but with the feature that a single reading may be made at any desired depth.

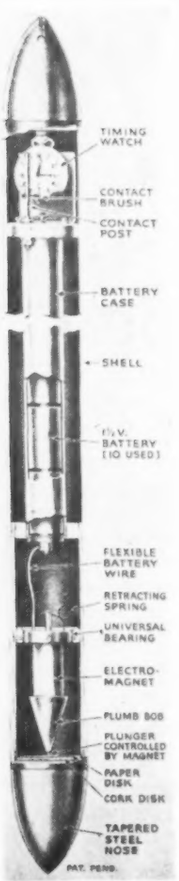
The new machine, not yet given an official name, is very simple, yet rugged in its construction. It is the result of public demand among oil field men for an instrument similar to the Driftmeter, but one that would make a single reading at a desired depth. Because of its simplicity in its workings, its few parts to get out of order, ease of running in the hole, accuracy, and the fact that it requires no figuring to determine the off vertical direction taken in any hole at a quick glance, it is proving popular with many of the companies operating in the Mid-Continent.

Description of New Machine

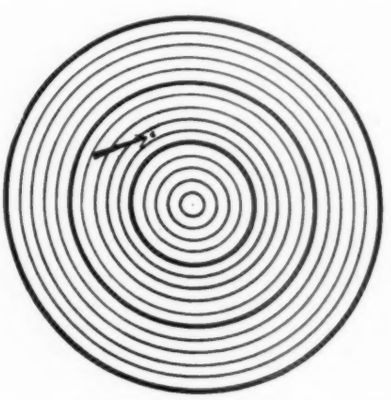
The entire instrument, including the protective shell placed over it when being lowered into the hole, weighs but 30 pounds, making it light and easily transferred from place to place. The machine is about three and one-half feet long. It is lowered into the hole by means of the usual wire line or reel, or any other equipment rigged up for the purpose of using an acid bottle or other similar instrument. Consequently, with no rigging up, it requires but little time to make a test.

The ancient, but still highly thought of, method of using a plum bob is employed to determine the degree from vertical. This bob is made of brass to prevent it from being attracted by any electric magnetism that might be encountered beneath the surface of the earth. The top of the plumb bob has a universal bearing, which allows it to move freely in any direction.

Below the universal bearing and immediately above the plub bob is an electro-magnet that operates a plunger, similar to a needle. Electric current from 10 batteries of the regular flashlight one and one-half volt size, when a contact is formed, causes this plunger to penetrate from the end of the plub bob into a small paper disk, representing a circular chart. This chart has 15 lines, or circles, each



Cutaway drawing of the machine, showing setting in protecting shell and interior workings



The chart with arrow pointing to off-vertical reading at 6½ degrees. This picture is approximate size of actual

Close-up of the machine outside of protecting shell, with chart seen at the bottom

circle representing one degree from vertical. Every fifth line is a heavy one to make readings more easy and accurate. When the plunger stabs this chart it leaves a small hole, similar to a needle being stuck into it, and this marks the slant from vertical of the hole.

The paper chart is located in the bottom of the instrument and can be taken out by merely unscrewing a small cap from the bottom. A new one can be readily installed by the same method, or after taking the reading another one may be made with the same chart being used.

Watch Determines Time Test is Made

The feature of the new instrument over the Driftmeter machine is the timing watch, found at the topmost part of the machine. It is upon this regular watch that depends the important task of taking a reading at desired depth. When the crew—and a special crew for such work is not needed it is so simple and the record so lasting—is ready to lower the instrument into the hole the minute hand on the watch is set to a point from the contact brush found over the figure six at the bottom of the face of the watch. The point to which the minute hand is set depends upon the depth at which a reading is wanted. The time is estimated that it will require to lower the instrument to the depth for the desired reading.

When the minute hand has traveled around to the figure six it comes in contact with the contact brush, causing an electric current, through the contact post and the batteries to a flexible battery wire with the electro magnet, resulting in the plunger at the bottom of the plumb bob sticking the disk chart and making the reading.

A feature of the instrument is that there is little to get out of repair. Flashlight batteries should be capable of making a number of readings as the flow of electric current is for just a second as the minute hand passes the contact brush. When these batteries have been weakened by use they may be easily changed and new ones installed. Just above the universal bearing in the instrument the upper part may be unscrewed, allowing the batteries to drop out and new ones may be put in place.

Driftmeter, Inc., is headed by Howard S. Splane as president and backer. The first machine was invented by W. W. Hester, then an engineer with the Devonian Oil Company, and also inventer of the new machine which makes single readings at any desired depth.

Edgar Johnston, president, Johnston Formation Testing Corporation, returned March 15 to his El Dorado, Arkansas, headquarters from Colorado, where he went to make a special job drill stem test on The Texas Company's Rio Blanca No. 1 wildcat, located 100 miles from Rifle, Colorado. The test was made at 5848 feet in a 4¾-inch hole, which required a specially made tool for this small hole. The well made a one million foot gasser.

A. S. M. E. Group Visits Oil Fields in Oklahoma

TULSA.—The American Society of Mechanical Engineers, through a dozen of its national officers, has under consideration ways and means by which that organization of nearly 20,000 members will actively participate in the development of mechanical engineering as applied to oil field and refinery practice, with a view to effecting economics of operation and promoting safety of life and property. This group of national officers spent four days in making inspection trips and in conference with leading executives of the petroleum industry.

The party arrived in Tulsa March 9 and was quartered in the Tulsa Club. Thomas R. Weymouth, president of the Oklahoma Natural Gas Corporation; Arthur J. Kerr, chairman of the Mid-Continent Section, A. S. M. E.; and William G. Heltzel, chairman of the National Petroleum Division of the A. S. M. E., escorted the party to Kelleyville, Oklahoma, where the plant of the Oklahoma Natural Gas Corporation was seen in operation. After luncheon, at the Harvey House in Sapulpa, the party motored to Hominy where the Sinclair Pipe Line Company's pumping station was inspected.

The group went to Oklahoma City on Monday and were the guests of the Oklahoma Gas & Electric Company and the Indian Territory Illuminating Oil Company. Several pumping stations, including the water pumping station were visited, and after luncheon at the Oklahoma City Club, the party visited the Oklahoma City oil field where they had the opportunity of witnessing rotary drilling by various prime movers, a compressor station, and several other things.

The following day was spent in conferences with the various committees which have been functioning in the Mid-Continent area for the past several months. These include the committee on automatic pumping station control, committee on analysis of pipe line pumping station costs, committee on production which is inaugurating a long list of activities by making a study of prime movers for rotary drilling, committee on unfired pressure vessels, committee on gas transportation which is directing its attention first to a study of compressors and compressor stations.

The object of the conference was to give the national officers some conception of the amount of mechanical equipment used in the petroleum industry, and the extent to which this apparatus fails to meet the needs of the industry, to establish the value of A. S. M. E. leadership through committee work; the formulation and revision of various codes; research and investigation, etc.

March 18 the national officers were entertained at luncheon by the board of directors of the Exchange National Bank of Tulsa and were addressed by a number of prominent executives of the petroleum industry, including William G. Skelly, president of the Skelly Oil Company and International Petroleum Exposition; Thomas R. Weymouth, president, Oklahoma Natural Gas Corporation; Lee C. Moore, vice-president, Lee C. Moore Company; H. B. Bernard, vice-president, Sinclair Oil & Gas Company; Dr. John Finlayson, chancellor, University of Tulsa; William Holden, executive vice-president of the Tulsa Chamber of Commerce; and R. S. Knappen of the Gypsy Oil Company.

The officers of the Mid-Continent section of the society are: Arthur J. Kerr, chairman, Pittsburgh Equitable Meter Company; William D. Moorer, vice-chairman, president, Moorlane Company; Fred Thilenius, secretary, Prescott Pump Company; H. M. Manley, treasurer, Barnsdall Oil Company; Barton P. Sibole, Sinclair Pipe Line Company and P. M. Biddison.

It is anticipated that as a result of this visit by the national officers of the A. S. M. E. that an office will be established in the Southwest, with headquarters at Tulsa with a field secretary in charge. This would insure the necessary secretarial assistance properly to coordinate the work of the various committees, issue their minutes, plan their meetings, and in other ways promote activity along mechanical engineering lines so much needed in the petroleum industry.

Casper.—A newly announced merger is that of the Oregon-Wyoming Oil & Gas Company and the Portland Osage Oil Company with a combined capitalization of $225,000 and holdings in both the Oregon Basin and the Osage fields in Wyoming.

The new company is to be known as Yellowstone Petroleum Company, and its plans include an intensive drilling campaign during which several wells are to be drilled in the old part of the Osage field, and two in the new extension which has proved productive recently in the deeper sands. Old producing wells are to be cleaned out, deepened, and placed on production. The company drilled one well in the Oregon Basin district, but it was off structure, and was abandoned a dry hole.

Great Falls, Montana. — Midnorthern Oil Company, an operating subsidiary of the Midwest Refining Company, has purchased the property of the Arcus Production Company in the Kevin-Sunburst field in Toole County, consisting of about 120 acres on which there are 10 producing wells with an average of 80 barrels production per day.

Los Angeles Exposition Success Points to Annual Affair

By BRAD MILLS
Staff Representative

LOS ANGELES. — The first Oil Equipment and Engineering Exposition held in California was completed Sunday, March 23, and in the opinion of those who attended as well as those who exhibited oil country equipment at it, it was a distinct success.

Held in the Shrine Civic Auditorium, the exposition showed not only the newest ideas in equipment made in California, but equipment manufactured in the Mid-Continent, the Gulf Coast and the East as well. The exhibits were well arranged and the attendance of California oil men was very satisfactory.

The exposition was due to the work of E. G. Lenzner who worked day and night to make it a success. Arranged with precision and with almost every known convenience incorporated for the benefit of the exhibitor, the first show compared favorably with the early expositions held at Tulsa.

The representative list of exhibitors and the attendance demonstrated the possibility of making the exposition an annual affair. About 200 exhibitors used space, the last-minute rush for booths practically filling the large auditorium.

Exhibitors sponsored a written resolution, commending E. G. Lanzner for conceiving such an exposition. More than 200 signed the paper. These exhibitors stated that there had been an urgent need for a means through which equipment manufacturers could display their products in California, and that the present exposition satisfied the need. It was pointed out that it was possible to secure the attendance of a large number of men in the oil industry, many of whom hold responsible positions and exert powerful influence on the purchases of their companies.

Many exhibitors stated that they had been able to make many splendid contacts and to tell a sales story under the most auspicious conditions, with noteworthy results. Apparently the business the exposition will stimulate immediately and in the future will mean increase profit for the exhibitor, according to the resolution signed by nearly all exhibitors.

The exposition will become a permanent affair, E. G. Lenzner, managing director having announced that ground would be purchased and a suitable building erected to insure permanency. It is also planned that manufacturers may maintain permanent exhibits in the large building to be constructed soon, with a trained engineer in attendance to explain details.

A group of Soviet engineers, headed by V. Korobovkin, government representative, inspected the exhibits carefully and were greatly impressed with the new equipment and rapid strides made during the past few years.

The meetings of various societies which were held in connection with the exposition were of outstanding interest. They were the direct means of attracting a large number of technical men from all parts of the state.

A session of the American Institute of Mining and Metallurgical Engineers, California Section, was held Wednesday afternoon, March 19, with Glenn D. Robertson of Cities Service Petroleum Company, Ltd., presiding.

"Use of the Eotvos Torsion Balance," a paper by H. W. Rose of the George Steiner Company, was a feature of the session. The torsion balance has been used little in California, but several major companies are showing an interest in the instrument. The adaptability of the instrument to California conditions was also discussed.

"Drilling Mud Fluid Practice in the Ventura Avenue Oil Field," by F. W. Hertel and E. W. Edson, petroleum engineers for Associated Oil Company, was the subject of favorable comment among engineers who have studied the relationship between uniform mud conditions and poor results in drilling. The paper revealed that Associated Oil Company is installing a new mud mixing and reclaiming system which will be perhaps the most modern in California.

Robert W. Phelps, consulting engineer, gave a talk on "Production Data to Establish Various Theories on Well Spacing." Phelps has made an exhaustive study of the relationship between the spacing of wells, the ultimate recovery of oil per acre and the revenue expected from various methods of spotting wells.

The evening session on March 19 was sponsored by the American Society of Mechanical Engineers, with L. W. Voorhes, Union Oil Company, as chairman. J. Z. Welsh and T. S. Tulien, of the oil equipment division of the Johns Manville Company, read a paper on "Mining and Manufacturing Asbestos for Use in the Oil Industry." The paper was illustrated by lantern slides.

Development and Production in Two-Day Session

The two-day session of the Division of Development and Production Engineering, American Petroleum Institute (California Section), started Thursday afternoon, with the assembly room of the auditorium comfortably filled.

Alexander Anderson, pioneer in the art of well surveying, talked on "Progress in Straight Hole Drilling." He gave an account of many of his experiences in the study of both straight and crooked holes, touching upon the value of keeping the hole straight and the improvement in drilling methods.

"Sub-Surface Condition in Kettleman Hills," a paper by Stanley Herold, consulting geologist, revealed many interesting theories concerning California's most unusual field and precipitated much discussion. Herold stated that his study of the field indicated that it is ostensibly a gas field and that perhaps only about two per cent of the fluid produced is held in solution in the sand.

Interest in the area made "Drilling and Producing Operations in Kettleman Hills," by R. I. Brown, an important paper. Problems encountered in this light producing district were revealed.

The Thursday evening session was sponsored by Southern California Meter Association. The papers included "Findings and Disposition of Orifice Meter Charts for Office Records," by V. E. Scholtz and R. M. Brown of Union Oil Company; "Uses for Liquefied Petroleum Gas in the Gas Industry," by F. A. Hough, Southern Counties Gas Company; "Natural Gas Odorization in Southern California," by Guy Corfield, Los Angeles Gas & Electric Company; and "The Campbell Mist-D-Fier," by J. A. Campbell, J. A. Campbell Company.

The Division of Development and Production Engineering resumed its program Friday, March 21. The afternoon program included the following papers: "Better Drilling," by F. F. Hills, manager of production, Union Oil Company; "Wharf Construction," by John Sweeney, Continental Oil Company; and "Counterbalancing Pumping Wells," by W. S. Corey and J. H. Wallace, Union Oil Company.

The annual election of officers of the California Section was held Friday, all nominations of the nominating committee having been elected unanimously. A. H. Bell, Continental Oil Company was chosen chairman; V. H. Wilhelm, The Texas Company, vice-chairman; E. W. Masters, Shell Oil Company, secretary; and Lester Keim, Oilwell Supply Company, treasurer.

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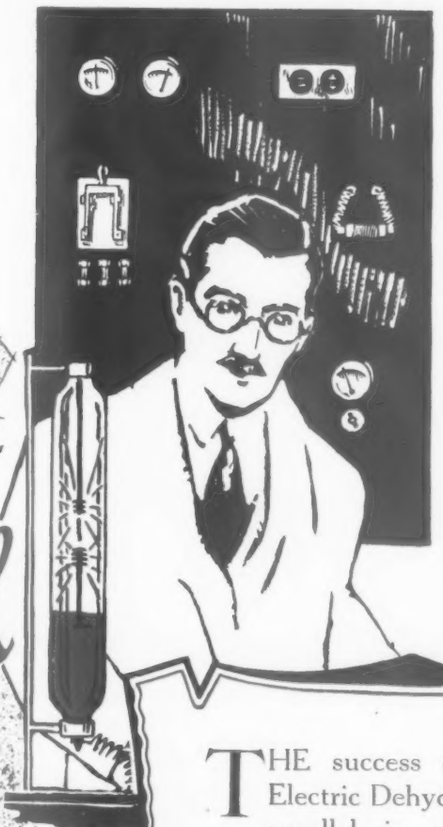

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Sidney Powers New President Of Geologists Association

By KENT RIDLEY

NEW ORLEANS.—The American Association of Petroleum Geologists is moving to extend its research program through establishment of a fund of $50,000, the interest of which is to be used in financing research problems approved by the committee, together with special research foundations of $5000 or more. Approval of this by the membership came at the final business session of the fifteenth annual meeting of the association on March 22. It ranks as perhaps the most important constructive action of a session which had brought together more than 900 members of the association, and at which it was shown that substantial progress is still being made in all departments of geological association work.

The annual election of officers resulted in the selection of Dr. Sidney Powers of Tulsa as president, defeating David Donoghue of Fort Worth. Ralph D. Reed of Los Angeles was elected first vice president by acclamation. Marvin Lee of Wichita, Kansas, was elected second vice president over J. M. Sands of Bartlesville, Oklahoma. F. H. Lahee of Dallas, Texas, was re-elected third vice president by acclamation. These officers, with J. Y. Snyder, retiring president, constitute the executive committee of the association.

The proposal for soliciting funds for research was brought before the convention in the form of a resolution presented to the business committee by a sub-committee composed of Raymond C. Moore and F. B. Plummer, and reported to the general business session by Wallace E. Pratt, chairman of the business committee. It is suggested that "a committee to be appointed by the president of the association be empowered to solicit in the name of the association (1) contributions to a general research fund of $50,000, the income of which may be used for the promotion of research projects and activities specifically approved and supervised by the research committee; (2) research foundations in amounts of $5000 and above, which shall carry the name of the donor, the revenue, or, with the approval of the executive committee and the consent of the donor, the principal of which shall be employed for the promotion of research projects specifically approved and supervised by the research committee. Publication * * * to be controlled by the association and to carry acknowledgment of the name of the foundation."

Pointing out the importance of research, the report further stated that the committee has considered and approved a number of important research projects which require funds.

D. C. Barton brought before the business committee the question of a resolution concerning the establishment of a Mississippi River flood control observatory. His suggestion resulted in the appointment of a committee consisting of D. C. Barton, Alexander Deussen, L. H. White, S. P. Borden and A. C. Trowbridge, who prepared a resolution, later adopted in open meeting by the association, commending the efforts of General Brown and his colleagues of the army engineers in establishing the present laboratory and recommending to congress liberal support and maintenance of the laboratory.

A resolution authorized the executive committee of the American Association of Petroleum Geologists to make necessary arrangements with the organization committee of the Sixteenth International Geology Congress to edit and publish the proposed monograph dealing with the petroleum resources of the world and offer it for sale to members of the congress and others at a price sufficient to eventually return to the association the cost of publication.

A resolution provided that steps be taken to encourage groups of the membership to make contributions to the revolving publication fund, looking to increasing the present fund of $5000 to $10,000.

The business committee rejected a proposal that the American Association of Petroleum Geologists join with the American Mining Congress and the American Institute of Mining and Metallurgical Engineers in a proposed fall meeting in El Paso, but commended the San Angelo Geological Society for its interest they have shown in the joint meeting. Previously the committee had rejected a proposal that the date of the annual meeting of the association be changed. These questions were given approval in open meeting of the membership.

The revised draft of constitution and by-laws presented by a special committee failed of approval by the business committee, but after detailed discussion and minor corrections and revisions, it is to be presented to the membership in ballot form, its adoption to be by mail. Pending adoption of a revised constitution which will change the definition of membership requirements, it was voted that a liberal interpretation of the section which now defines qualifications shall be made to admit "properly qualified and experienced geophysicists and paleontologists engaged in the search for petroleum should be admitted to membership."

Membership and Finance

The report of A. R. Denison, second vice president in charge of finances, shows a total membership of 2292 in the American Association of Petroleum Geologists, of which 1683 are active and 602 associate members. Changes in membership include eight lost by death and 49 from other causes, and a net gain in total membership of 166, with 209 applications elected or pending. Associate memberships decreased during the year, reflecting transfer to the active list.

Membership in the association is distributed over 39 states and 30 foreign countries, with approximately 90 per cent of the members in the United States. In the states, Texas, with 657 memberships and Oklahoma, with 521, are first and second, respectively, in point of numbers.

Audit of the books and property of the association shows a satisfactory financial condition, the report concluding in summary that "it may be said that the association registered substantial gains both in membership and in finance; at the same time it has rendered larger and broader service to each individual member, to petroleum geology and to science in general."

Technical sessions of the convention were divided into three groups: geology, geophysics and paleontology.

The opening general session was on the general subject of the Mississippi Embayment, presided over by Dr. F. H. Lahee. It opened with a paper by C. L. Moody of Shreveport, who reviewed the Tertiary history of the region of the Sabine Uplift in Louisiana.

Recent material deposited by the Mississippi and other waters was discussed by R. A. Steinmayer of New Orleans, whose subject was "Phases of Sedimentation in the Gulf Coastal Plain of Louisiana." His estimates of the quantity of sediment current in the river brought some questions and discussions from the floor.

"Contributions to the Cenozoic History of the Texas Plains," by Charles Laurence Baker of Houston, and "Marine Oligocene of the Coastal Plain of Texas and Louisiana," by Alva C. Ellisor of Houston, both by title, were followed by a discussion of the post-Oligocene problems of correlation, both solved and unsolved, as viewed in the light of present

information, by Marcus A. Hanna of Houston.

Ralph E. Grim, University of Mississippi, discussed "Sedimentation in the Eastern Part of the Mississippi Embayment in Eocene Time." His conclusion was that the Miday and Wilcox sediments of the eastern embayment are largely delta deposits of rivers which have been turned back by later changes.

"Oligocene and Miocene Formations of Southwestern Alabama," by D. R. Semmes of San Antonio, Texas, was by title, and W. C. Spooner and R. T. Hazzard of Shreveport discussed the "Comanche Series of Louisiana and Arkansas."

J. S. Ross, Washington, D. C., discussed briefly the stratigraphy, structure and production horizons of the deep sands of Cotton Valley field, Louisiana, dealing specifically with recently developed Trinity formations.

Geological and geophysical notes on the Van structure in Van Zandt County structure were reviewed in a 15-minute paper by R. A. Liddle of Fort Worth, and the Clay Creek field in Washington County, Texas, was dealt with by F. E. Heath, J. A. Waters and J. B. Ferguson of Dallas, Texas. A similar discussion of the Salt Flat field in Caldwell County, Texas, was presented by L. F. McCullum, S. O. Burford and C. J. Cunningham of San Antonio.

By title, D. R. Semmes discussed evidence from wells penetrating the "Coastal Plain in Alabama and Georgia."

E. H. Sellars of Austin, Texas, discussed the "Pre-Cretaceous Rocks of the Balcones Fault Region of Texas," in a 15-minute paper, and the same rocks in Arkansas were treated by W. C. Spooner of Shreveport, La., the latter by title.

A brief history of the Balcones fault in Texas and arguments concerning its probable age was presented by Robert H. Cuyler of Austin, Texas.

An attempt at the explanation of the method and rate of delta building was undertaken in "The Building of the Mississippi Delta" by A. C. Trowbridge, Iowa City, Iowa.

Donald C. Barton's paper on "Surface Geology of Coastal Southeast Texas" was by title, but he presented a new vista of the petroleum possibilities of the coastal area under his subject "Review of Petroleum Potentialities of the Texas-Louisiana Gulf Coast." Revising previous figures upward, the former having been based on shallow dome possibilities, he now raises the possible to 10,000,000,000 barrels.

One of the fields that heretofore considered in Gulf Coast potentialities, Refugio, was dealt with by A. G. Madden and John S. Cruse, Jr., of Houston, in a 10-minute discussion of its various phases.

W. Armstrong Price had two papers on Southwest Texas—"Physiography of the Corpus Christi Area" and "The White Point and Saxet Fields," the latter by title. He described the Corpus Christi region as en emergent coast of extreme youth, having been lifted by sedimentation in lagoons by wave action and the Nueces River, defined as a "progressive" river.

"Deep Sand Development at Barbers Hill" was treated by P. C. Murphy and Sidney A. Judson of Houston.

H. K. Shearer of Shreveport, whose paper on the Geology of Catahoula Parish, Louisiana, was by title, was co-author with E. B. Hutson of Shreveport of a paper discussing briefly the geologic history of the Dixie area and the older Caddo field as revealed by recent drilling.

Faulting in Southwestern Arkansas was discussed by C. L. Rankin of Lake Charles, Louisiana, in which he reaches the conclusion that there are possibilities of deep discoveries between the Irma pool at the Texas line.

Development problems in the Louisiana Coast district were discussed by E. R. Ames of Orange, Texas. This dealt largely with transportation and drilling difficulties.

"Cretaceous and Tertiary Sediments of Kentucky, Illinois and Missouri," by J. E. Lamas and A. H. Sutton, Urbana, Illinois, was by title, as was "Surface and Subsurface Structure of the Tri-County Oil Field of Southwestern Indiana," by J. M. Wanenmacher of New York and W. B. Gealy of Pittsburgh.

DR. SIDNEY POWERS

Consulting Geologist, Amerada Petroleum Corporation, Tulsa, new president of American Association of Petroleum Geologists

Geothermal conditions came up for consideration at the opening of the general technical session Friday morning, with a discussion of "Geothermal Variations in Some Oil Fields of the Los Angeles Basin, California," by Anders J. Carlson, Berkeley, California. Variations in geothermal constants were suggested as possibly of correlative value. Similar discussions of conditions in Oklahoma and Texas were discussed by John A. McCutchin, Norman, Oklahoma, on the former, and E. M. Hawtof of Waco, Texas, and K. C. Heald, Pittsburgh.

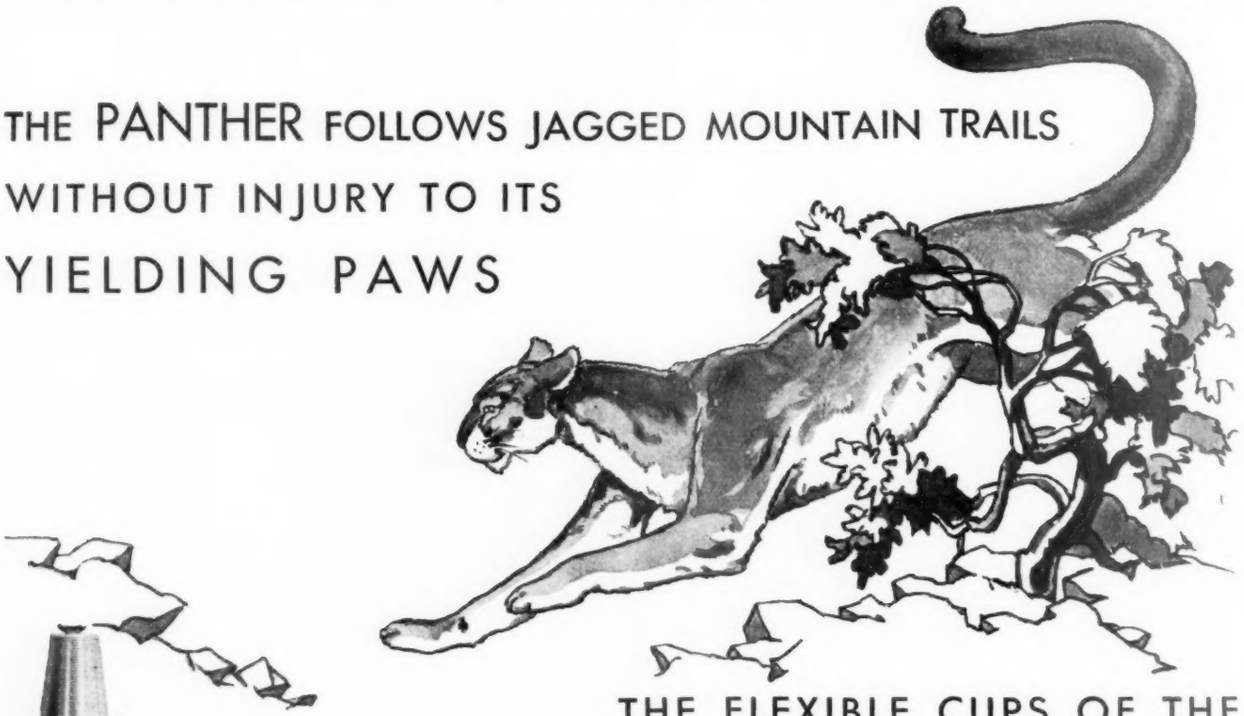
"Data on Sulphate Reducing Bacteria in Soils and Waters of Illinois Coal Fields," was the subject of Edson S. Bastin and Frank E. Greer of Chicago.

A summary report on "Origin and Environment of Source Sediments" was given by Parker D. Trask, Princeton, New Jersey. This research is under the auspices of the American Petroleum Institute.

(Continued on page 74)

FLEXIBLE THINGS ENDURE

THE PANTHER FOLLOWS JAGGED MOUNTAIN TRAILS WITHOUT INJURY TO ITS YIELDING PAWS



THE FLEXIBLE CUPS OF THE GUIBERSON SWAB TRAVEL THROUGH WRINKLED, DENTED AND PITTED CASING WITHOUT INJURY AND WITHOUT LOSING ANY OF THE FLUID . . .

PROTRUSIONS in the casing mean only one thing to the flexible cups of the Guiberson Swab . . . they must give way until the obstacle has been passed and then continue on up the casing . . . with no rubber torn, no sticking and no fluid lost back into the hole. They weren't put in to fight protrusions but to lift oil, and that's what they do . . . every drop of it.

To make sure that the cups will give way properly, guide wires steer the cup rims while they are passing such protrusions. For the rest of the time, these rims are pressed firmly against the casing wall, under the weight of the column of fluid, and the heavier the column, the tighter the cup rims are pressed against the casing, firmly sealing up the load. While running in, pressure from below colapses the cups, allowing far speedier passage into the hole. Rubbers are made of special composition which will not deteriorate even after weeks in high gravity oil. The Guiberson Swab, with endurance similar to its cups', continues to hold the record for doing most of the world's swabbing . . . *Fully Patented.*

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BETTER BE SAFE THAN SORRY

Markets--Production--Crude Prices

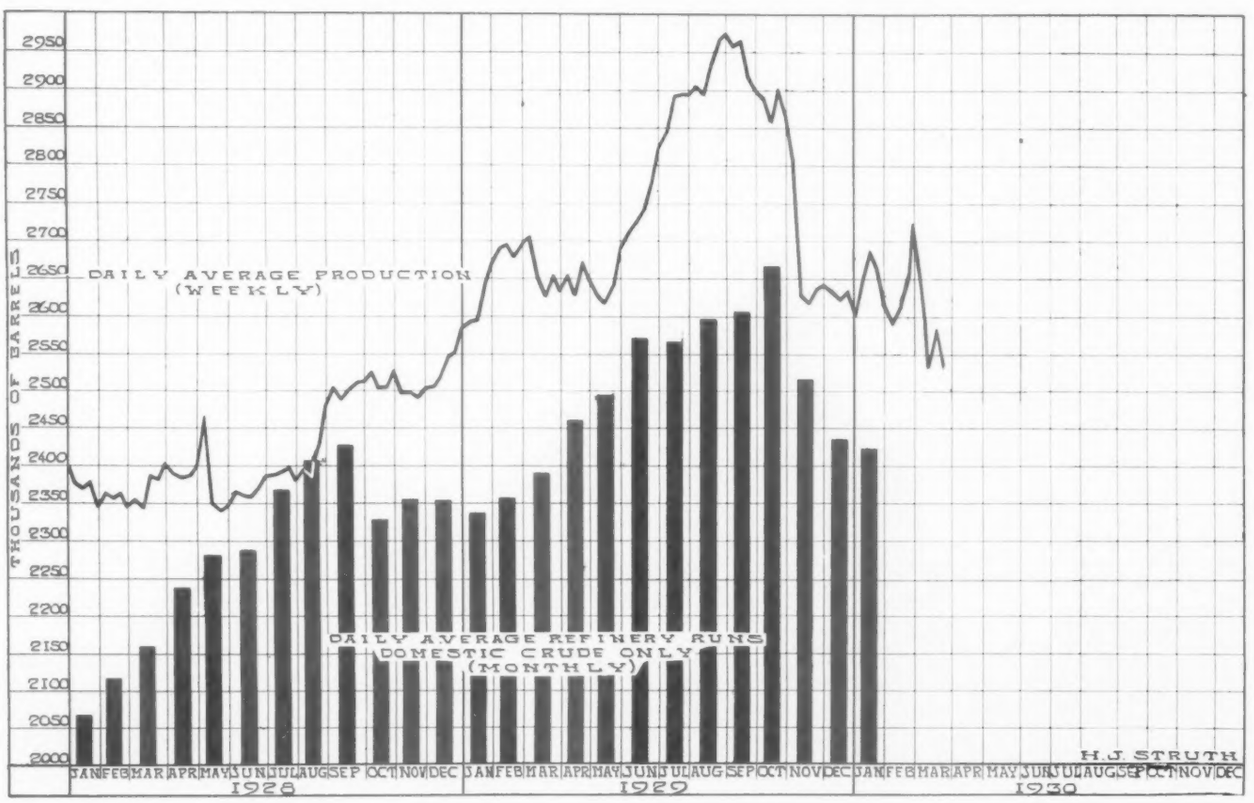
H. J. STRUTH, *Staff Economist, Houston, Texas*

Production Decline Improves Crude Situation

A DECLINE of 47,300 barrels in daily average production last week materially aided the crude situation, bringing the current excess down to only 86,608 barrels. At the same time, a wire report from California states that daily production at Santa Fe Springs has been further reduced to a daily average of about 125,000 barrels. This means a decline for California of 28,700 barrels additionally, which reduces the excess production of the United States to only 57,908 barrels. This is a most encouraging turn for the industry, the continuation of which can only spell equilibrium in the near future. It is significant, however, that while the current rate of production is within striking distance of the quota established in the accompanying table, the industry should not lose sight of the accumulated excess production since January 1. According to the facts at hand, this quantity aggregates more than 13 million barrels and represents a sizeable daily excess to be considered in curtailment plans. Thus, where current production is shown to be less than the normal rate prescribed by the demand, as in the case of California and Oklahoma, it is apparent that consideration of the accumulated excess will reveal the necessity for even further curtailment.

It will be noted by those who have followed the table of excess production each week that the accompanying data has been revised to include the consideration of additional demand for crude used for purposes other than refining and foreign shipment, and also the consideration of surplus stocks accumulated last year. This has lowered the necessary daily average production figures somewhat and is believed to present a more accurate picture of the situation. This data is also presented in more detail in order to show the status of the leading individual producing states, rather than to group them as was done formerly. The results of further study of the many factors comprising the true status of the crude and refined oil situation will be presented

DOMESTIC PRODUCTION AND REFINERY RUNS



in a special article in the next issue. This will furnish an up-to-the-minute picture of conditions by states and will show how much further curtailment efforts will have to be carried to insure a true state of equilibrium.

Oklahoma Decline

Oklahoma furnished the bulk of the production decline last week, with a decrease of 35,900 barrels. This resulted in turning an excess production of the week ending March 15 of 32,270 barrels to a shortage figure of 3630 barrels. This is, of course, based upon current production figures only. Production in Kansas was up 950 barrels, increasing the excess figure of that state of 9570 barrels daily. Oklahoma City and the Greater Seminole district were mainly responsible for materially lower production in Oklahoma, while the Voshel field, in Kansas, boosted the production of that state. On the whole, conditions continue to improve in Oklahoma and there is now every reason to believe that the market structure is becoming somewhat stronger. It is now being freely predicted in Oklahoma oil circles that a boost in crude prices is not far distant. Judging from the facts at hand, it would not be at all surprising to learn of such action in the near future. In fact, if the present trend of production continues, even on a moderate scale, a boost in prices will undoubtedly be justified.

Texas registered a net decline for the state last week of about 5000 barrels daily, although the area outside of the Gulf Coast showed a decline of 8800 barrels. The facts continue to show a most unsatisfactory state of affairs in Texas, since the indicated excess continues to hover around 100,000 barrels daily. It appears now as though Texas is fully responsible for the nation's excessive crude production, placing it in practically the same unfavorable light from which California seems to have emerged. Texas operators cannot expect to share in any market improvement that may take place elsewhere until production is lowered by the amount indicated. At present, the only area showing any improvement is the Yates field where production has been forced lower by reason of the fact that Humble Oil & Refining Company has reduced purchases and placed runs on a six-day basis. The full effect of this has not been realized as yet, but it is expected that production there will be reduced to 110,000 barrels daily. This, coupled with the natural declining tendencies in Winkler County is expected to aid the situation, but more effective measures are needed to remedy overproduction in other sections of the state. It is obvious that only the restriction of output to the degree indicated, at least, can strengthen the crude market in Texas. The sooner this is realized, the sooner will operators receive better prices for their oil.

How Last Week's Daily Average Production Compares With Necessary Production
(Revised)

	Necessary Daily Average 1930	Actual Daily Average Week Ending March 22	Excess
Arkansas	67,293	58,700	—8,593
California	664,736	649,400	—15,336
Kansas	107,580	117,150	9,570
Louisiana	54,493	57,750	3,257
Oklahoma	619,830	616,200	—3,630
Texas	732,834	830,400	97,566
Balance of U. S.	202,526	206,300	3,774
Total	2,449,292	2,535,900	86,608

Cumulative Total Production

	Necessary Production to March 22	Actual Production to March 22	Excess
United States	198,392,652	212,059,950	13,667,298

Excess Runs to Stills

Another factor that is retarding market conditions is the continued running of excessive quantities of crude through stills at refineries. Although the Federal Oil Conservation Board has recommended that refiners reduce runs by shutting down on Sundays, it is apparent that comparatively few have heeded this advice. According to figures released by the American Petroleum Institute, refinery runs continue about the same, while gasoline stocks are increasing at an abnormal rate. During the week ending March 15, runs to stills in the United States averaged 2,554,000 barrels daily, whereas runs during the week ending March 8, averaged 2,532,000 barrels daily. Refiners in California have voiced approval of curtailing still runs, but the figures have remained constant for many months. The same situation applies in Texas, where runs have been increased instead of curtailed. Oklahoma has perhaps shown more improvement in this direction than any other section of the country. American Petroleum Institute figures show that gasoline stocks have increased 1,796,000 barrels during the first half of March, alone. This is not a very satisfactory situation in view of present and impending market conditions.

Following are the production changes by districts, as reported by the American Petroleum Institute for the week ending March 22:

		Barrels
Gray County	Increase	1,800
Wilbarger County	Increase	2,050
Ector County	Increase	1,750
Yates	Decrease	9,950
Salt Flat	Decrease	1,100
Barbers Hill	Increase	4,800
Humble	Decrease	1,200
Pierce Junction	Decrease	1,450
Refugio	Increase	1,000
Yale-Jennings	Increase	1,350
Seminole	Decrease	5,150
East Seminole	Decrease	1,000

CRUDE RUNS TO STILLS, GASOLINE AND GAS AND FUEL OIL STOCKS, WEEK ENDING MARCH 15, 1930
(Figures in barrels of 42 gallons)

District—	Potential Daily Capacity	Potential Capacity Reporting Total	Potential Capacity Reporting Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast	605,700	605,700	100.0	3,322,700	474,700	78.4	8,985,000	6,457,000
Appalachian	128,100	116,600	91.0	534,800	76,400	65.5	1,850,000	666,000
Indiana, Illinois, Kentucky	360,000	355,000	98.6	2,049,800	292,800	82.5	8,056,000	2,959,000
Oklahoma, Kansas, Missouri	462,200	411,700	89.1	2,077,700	296,800	72.1	4,645,000	3,393,000
Texas	788,000	712,700	90.4	4,153,100	593,300	83.2	8,408,000	11,816,000
Louisiana-Arkansas	270,600	262,000	96.8	1,326,900	189,600	72.4	2,563,000	2,166,000
Rocky Mountain	148,900	139,300	93.6	442,100	63,100	45.3	2,945,000	1,052,000
California	897,400	891,400	99.3	3,971,200	567,300	63.6	16,534,000	108,625,000
Total Week March 15	3,660,900	3,494,400	95.5	17,878,300	2,554,000	73.1	53,986,000	137,134,000
Total Week March 8	3,660,900	3,497,400	95.5	17,728,700	2,532,700	72.4	53,132,000	137,469,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included Above in the Totals of Their Respective Districts:								
Texas Gulf Coast	526,500	523,500	99.4	3,235,400	462,200	88.3	7,311,000	9,173,000
Louisiana Gulf Coast	147,500	147,500	100.0	860,400	122,900	83.3	2,222,000	1,335,000

FIELD STATISTICS OF IMPORTANT DISTRICTS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS:								
Hendrick	621	3,117,155	5,028	564	88,535	157[1]	..	2
Church & Fields	217	215,920	994	209	22,285	107	..	2
Gulf-McElroy	85	62,055	730	83	14,280	172	..	2
Yates	376	2,508,345	6,750	363	134,575	371[1]	3	11
TEXAS PANHANDLE:								
Gray County	558	403,895	724	533	59,685	112[1]	20	56
Oklahoma City[2]	109	996,161	9,139	21	57,597	2,742	16	184
CALIFORNIA:								
Santa Fe Springs[3]	565	1,623,200	2,873	282	147,000	521	9	85

[1]Production partially pinched. [2]Oklahoma City has 147 completed oil producers, 36 of which are taking shut down time and are not listed as completed wells. Under proration plans and due to limited outlets only a small per cent of all wells are permitted to produce each day as indicated by number of producing wells. [3]Includes deep zone production. For field total add 60 wells and 7000 bbls.

Bowlegs	Decrease	6,550
Little River	Decrease	2,500
East Little River	Increase	2,700
Earlsboro	Decrease	2,950
St. Louis	Decrease	3,250
Mission	Increase	1,550
Oklahoma City	Decrease	21,050
Sasakwa	Increase	1,800
Santa Fe Springs	Decrease	5,300
Long Beach	Increase	1,000
Huntington Beach	Increase	1,000
Elwood	Increase	2,000
Voshel	Increase	2,400
Bayou Boullion	Increase	1,150
Sulphur Dome	Decrease	1,800
Salt Creek	Decrease	1,050
Eastern States	Decrease	1,150

California Injunction

A preliminary injunction to stop gas waste at Santa Fe Springs has been issued in superior court at Los Angeles and production in this troublesome field is expected to drop at least 40,000 barrels within the next three weeks. This reduction is based upon the present waste, gas-oil ratio and mechanical condition of the principal producers. The injunction is already effective and the effect of pinching in and shutting in of wells is being felt. There is little doubt but that the law can now be enforced and few, if any, operators will fight the decision.

The preliminary injunction granted against Santa Fe Springs operators is undoubtedly the forerunner of other restraining orders, with Long Beach and Kettleman Hills to fall under the ban within a few months, provided measures are not taken to remedy the waste before court action is invoked.

The action of the court probably means more to the market structure than any development of a generation. Production should fall immediately and it is altogether possible that the total may drop to a point just below 600,000 barrels. The crude and fuel oil market should show a better tone as production drops.

The curtailment program is going forward in a satisfactory manner, with many fields producing less than their allowable. Long Beach is still considerably over the correct figure and may remain too high for several weeks. Injunction proceedings to stop gas waste are pending and it may require a favorable decision for the state to bring the total production down.

A miniature gasoline war is raging in Southern California and if refiners and marketers do not reach an agreement a serious outbreak of price-cutting is feared. Major companies insist they have not reduced the price of gasoline at their service stations, but many leading brands are being retailed at various prices between 13½ cents and the regular posted price of 19½ cents. A more serious break seems just around the corner. A prolonged gasoline war would do much to nullify the favorable developments in the producing department of the industry.

Crude and fuel oil are showing a slightly better tone, with consumption approaching production. Little oil is being placed in storage, in sharp contrast to the large amount stored up to a few months ago.

Santa Fe Springs production is down to about 125,000 barrels under the restraining order issued in superior court and should drop more this week.

Superior Judge William Hazlett has appointed Joseph Jensen of Associated Oil Company, Ralph Arnold, geologist, and Frank O'Neil of Superior Oil Company to make a survey of the Santa Fe Springs field and report to him within two weeks.

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
(Barrels of 42 gallons)

	Week Ended March 15	Week Ended March 8
AT ATLANTIC COAST PORTS—		
Baltimore	80,000	159,000
Boston	59,000	60,000
New York	1,111,000	993,000
Philadelphia	487,000	180,000
Others	216,000	* 333,000
Total	1,953,000	1,725,000
Daily Average	279,000	246,429
AT GULF COAST PORTS—		
Galveston District	.....	70,000
New Orleans & Baton Rouge	.....	15,000
Port Arthur & Sabine District	.....	26,000
Tampa	35,000	.....
Total	35,000	111,000
Daily Average	5,000	15,857
AT ALL UNITED STATES PORTS—		
Total	1,988,000	1,836,000
Daily Average	284,000	262,286
Daily Average Four Weeks Ended	295,464	298,107

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS
(Barrels of 42 gallons)

	Week Ended March 15	Week Ended March 8
AT ATLANTIC COAST PORTS—		
Baltimore	16,000	159,000
Boston	.....	.....
New York	186,000	144,000
Philadelphia	181,000	.....
Others	157,000	* 28,000
Total	540,000	322,000
Daily Average	77,143	46,000
AT GULF COAST PORTS—		
Total	25,000	.....
Daily Average	3,571	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	565,000	322,000
Daily Average	80,714	46,000
Daily Average Four Weeks Ended	45,500	47,179
Distribution of Total California Oil Receipts is as Follows:		
Gasoline	470,000	* 178,000
Gas Oil	74,000	.....
Fuel Oil	.....	94,000
Kerosene Distillate	.....	50,000
Lubricants	21,000	.....
Total	565,000	322,000

*—Revised.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1929	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April	665,600	106,400	650,100	154,550	35,550	72,900	110,850	69,400	781,350	2,646,700	79,402,100
May	679,650	115,400	651,100	150,350	35,350	71,500	114,150	72,850	749,250	2,639,600	81,827,600
June	685,200	120,750	688,200	147,500	35,700	70,050	116,750	72,000	827,200	2,763,400	82,902,250
July	722,050	124,250	718,950	148,150	35,750	68,650	122,000	74,250	874,850	2,888,900	89,555,250
August	728,100	127,950	750,750	153,100	36,300	66,900	126,600	77,900	873,300	2,940,900	91,167,250
September	714,050	128,450	741,200	156,600	37,050	65,300	137,250	78,600	874,850	2,933,350	88,000,650
October	673,600	113,400	714,550	167,050	39,700	64,550	137,400	77,950	876,600	2,864,800	88,809,500
November	640,300	110,050	702,350	171,350	36,750	63,700	135,400	76,550	706,500	2,642,800	79,285,050
December	650,000	111,600	687,850	161,350	38,700	61,850	140,650	76,150	698,200	2,626,350	81,417,000
1930											
January	671,050	111,700	672,650	178,300	37,650	58,500	142,250	73,850	688,850	2,634,800	81,574,650
February	631,900	111,400	654,600	199,950	39,450	58,400	135,050	74,850	746,550	2,652,150	74,280,200
March 1	617,200	114,700	654,600	203,450	41,800	58,500	133,050	77,550	723,000	2,623,950	18,367,650
March 8	604,300	113,650	648,500	205,350	41,750	58,100	133,600	68,700	661,400	2,535,350	17,747,450
March 15	652,100	116,200	655,250	199,850	42,000	59,250	133,050	73,900	651,600	2,583,200	18,082,400
Mar. 22	616,200	117,150	646,450	203,050	38,650	58,700	131,900	74,400	649,400	2,535,900	17,751,300
Increase	.....	950	.....	3,200	.....	.....	.....	500	.....	.....	.....
Decrease	35,900	.....	8,800	.....	3,350	550	1,150	.....	2,200	47,300	331,100

TEXAS
(Outside Gulf Coast)

PANHANDLE DISTRICT

	Mar. 22	Mar. 15
Carson County	9,300	9,200
Gray County	59,600	57,800
Hutchinson County	23,500	23,350
Wheeler County	550	600
Others	600	650
Total	93,550	91,600

NORTH TEXAS

Archer County	17,650	17,850
Burkburnett	8,100	8,150
Electra	11,400	11,500
Iowa Park-KMA	5,150	5,300
Montague and Cooke Counties.	10,500	10,950
Wilbarger	25,950	23,900
Others	2,050	2,500
Total	80,800	80,150

WEST CENTRAL TEXAS

Brown County	7,800	7,850
Callahan County	3,700	3,700
Coleman County	4,800	4,900
Eastland-Desdemona	5,550	4,700
Jack County	4,100	4,300
Palo Pinto County	700	750
Shackelford County	6,600	6,600
Stephens County	5,850	5,850
Throckmorton County	850	900
Young County	9,900	10,100
Others	1,450	1,450
Total	51,300	51,100

WEST TEXAS

Ector	5,000	3,250
Crane-Upton Counties	45,200	45,400
Crockett County	2,000	2,000
Howard County	38,500	38,650
Jones County	2,100	2,100
Mitchell-Scurry Counties	2,100	2,150
Yates	126,000	135,950
Pecos County	5,700	5,850
Reagan County	16,700	16,850
Winkler County	88,000	88,900
Others	2,700	2,850
Total	334,000	343,950

EAST CENTRAL TEXAS

Boggy Creek	3,500	3,550
Corsicana-Powell	6,000	6,100
Currie	300	350
Mexia	4,150	4,250
Nigger Creek	200	200
Richland	250	250
Wortham	900	900
Van Zandt	9,900	9,850
Total	25,200	25,450

SOUTHWEST TEXAS

Darst Creek	15,500	15,500
Dale	300	300
Laredo District	8,700	8,800
Luling	10,100	10,200
Lytton Springs	900	900
Somerset	1,300	1,300
Salt Flat	22,500	23,600
Others	2,300	2,400
Total	61,600	63,000
T'tl Tex. (outside Gulf Coast)	646,450	655,250

TEXAS GULF COAST

Barbers Hill	27,800	23,000
Batson	1,200	1,200
Big Creek	2,900	3,050
Blue Ridge	1,900	1,900
Boling	1,000	1,000
Damon Mound	500	500
Goose Creek	4,900	5,150
Hull	8,700	9,250
Humble	19,200	20,400
Orange County	2,350	2,450
Pierce Junction	10,300	11,750
Racoon Bend	10,200	10,100
Refugio	39,200	38,200
Saratoga	1,050	1,050
Sour Lake	2,250	2,350
South Liberty	5,150	4,950
Spindle Top	15,500	15,750
Sugar Land	10,600	10,300
West Columbia	6,000	6,250
Washington County	1,500	1,550
Fannett	1,450	1,250
Port Neches	2,200	2,550
North Dayton	1,000	900
Others	7,100	5,350
Total	183,950	180,200
Texas Total	830,400	835,450

OKLAHOMA

Asher	2,400	2,400
Carr City	9,650	9,950
Logan County	9,000	9,100
Braman	3,550	3,550
Blackwell	3,350	3,350
Hubbard	1,600	1,600
Thomas	650	650
Tonkawa	7,950	8,050
Garber	4,500	4,050
Burbank	16,500	16,550
Osage (outside Burbank)	26,350	26,350
Cushing	14,350	14,350
Yale Jennings	9,650	8,300
Davenport	1,150	1,150
Bristow Slick	16,250	16,300
North Okmulgee	11,250	11,300
South Okmulgee	6,250	6,250
Cromwell	7,400	7,350
Papoose	2,800	2,950
Wewoka	3,950	3,950
Seminole	20,550	25,700
East Seminole	3,100	4,100
Bowlegs	22,050	28,600
Searight	8,350	8,600
Little River	42,300	44,800
East Little River	17,850	15,150
Earlsboro	37,500	40,450
East Earlsboro	41,050	41,600
Duncan District	7,400	7,650
Graham	3,500	3,800
Fox	1,250	1,300
Healdton	12,000	12,000
Hewitt	7,250	7,550
Scholem Alechem	13,400	13,800
Pearson	650	750
St. Louis	40,400	43,650
Allen	20,150	19,900
Maud	6,150	6,150
Mission	14,250	12,700
Oklahoma City	64,050	85,100
Sasakwa	10,200	8,400
Konawa	8,850	8,950
Others	55,400	54,400
Total	616,200	652,100

CALIFORNIA

Santa Fe Springs	152,400	157,700
Long Beach	104,000	103,000
Huntington Beach	29,500	28,500
Dominguez	8,500	9,000
Inglewood	17,700	17,800
Midway-Sunset	72,500	72,500
Ventura Avenue	45,400	45,200
Seal Beach	24,500	25,000
Elwood-Goleta	39,200	37,200
Kettleman Hills	12,700	12,700
Others	143,000	143,000
Total	649,400	651,600

KANSAS

Greenwood County	19,000	19,400
Florence-Covert	800	850
Peabody-Ebling	3,350	3,150
Eldorado-Towanda	13,500	13,400
Augusta-Fox Bush	2,900	2,900
Rainbow Bend	1,100	1,100
Russell	3,450	3,450
Churchill	4,200	4,500
Oxford	2,800	2,900
Sedgwick	21,800	21,700
Voshel	10,250	7,850
Others	34,000	35,000
Total	117,150	116,200

NORTH LOUISIANA

	Mar. 22	Mar. 15
Homer	3,600	3,600
Haynesville	4,600	4,650
Caddo Light	9,850	10,450
Caddo Heavy	2,700	2,650
DeSoto-Red River	3,050	3,050
Elm Grove	450	450
Bellevue	650	700
Cotton Valley	2,350	2,500
Urania	5,400	5,350
Pleasant Hill	750	700
Zwolle	2,550	4,850
Others	2,700	3,050
Total North Louisiana	38,650	42,000

LOUISIANA GULF COAST

Port Barre	1,750	1,750
Bayou Boullion	1,150	....
East Hackberry	1,200	1,200
Hackberry	1,200	1,200
Edgerly	500	500
Evangeline	1,100	1,000
Lockport	2,800	2,850
Sorrento	100	100
Sulphur Dome	3,500	5,300
Sweet Lake	100	....
Vinton	4,000	4,000
Others	1,700	1,750
Total Louisiana Gulf Coast.	19,100	19,650
Louisiana Total	57,750	61,650

ARKANSAS

El Dorado	4,000	4,000
Champagnolle	4,950	4,950
Smackover Light	5,350	5,300
Smackover Heavy	41,150	41,700
Stephens	900	900
Nevada	1,050	1,100
Lisbon	1,050	1,050
Others	250	250
Total	58,700	59,250

MOUNTAIN STATES

WYOMING

Salt Creek	29,650	30,700
Grass Creek	2,050	2,150
Elk Basin	700	750
Big Muddy	2,100	2,100
Lost Soldier	3,300	3,300
Rock River	2,300	2,300
Lance Creek	200	150
Oregon Basin	4,850	4,300
La Barge	2,250	2,300
Others	2,950	2,550
Total	50,350	50,600

MONTANA

Cat Creek	1,200	1,200
Sunburst	4,950	4,950
Pondera	2,050	1,700
Others	50	50
Total	8,250	7,900

COLORADO

Moffats (Craig)	1,000	1,100
Fort Collins	1,450	1,550
Florence	600	600
Others	1,350	1,500
Total	4,400	4,750

NEW MEXICO

Table Mesa	100	100
Artesia	800	700
Hogback	450	450
Rattlesnake	1,100	550
Bal. Lea and Eddy Counties	8,000	7,900
Others	950	950
Totals	11,400	10,650
Total Mountain States	74,400	73,900

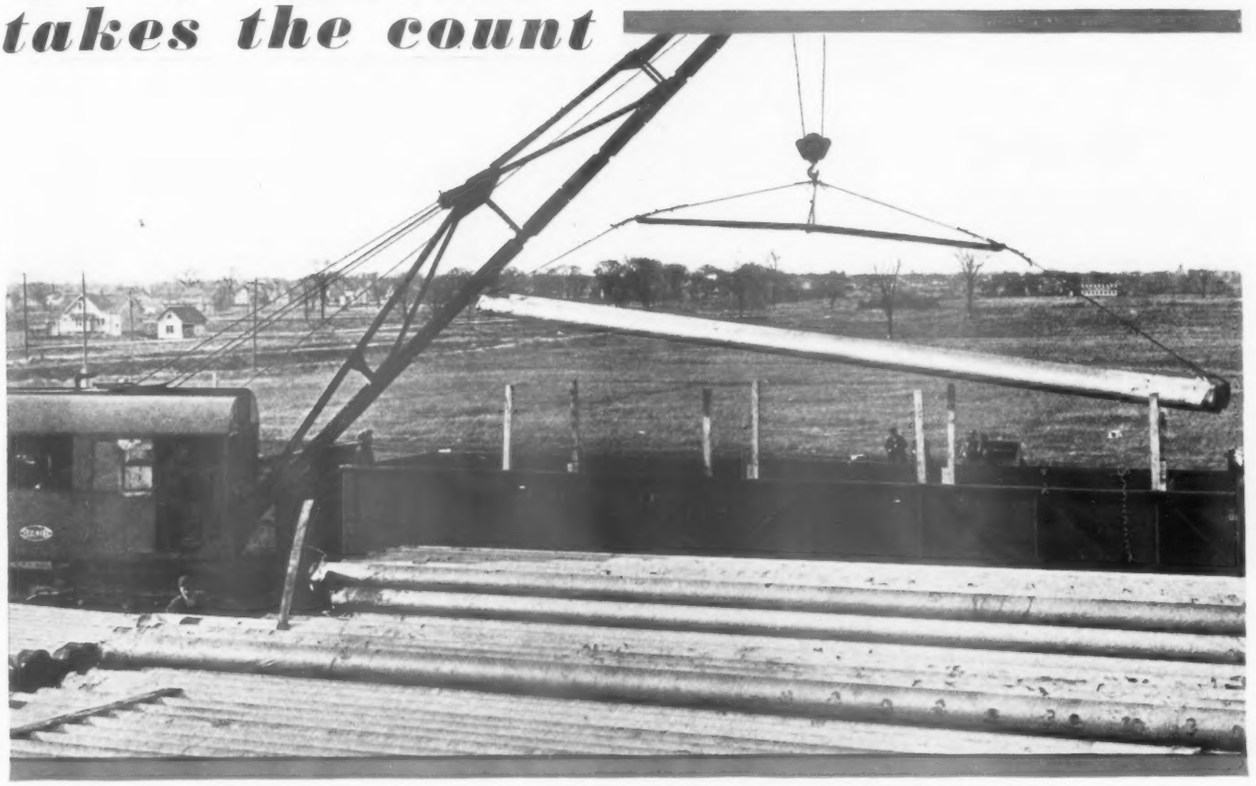
EASTERN STATES
(Including Ill., Ind., Ohio, W. Va., Pa., Ky., N. Y.)

	120,250	120,500
Michigan	11,650	12,550
Total Eastern	131,900	133,050

PRODUCTION SUMMARY

East of Rockies	1,812,100	1,857,700
Total U. S.	2,535,900	2,583,200

CORROSION
takes the count



Loading pipe mechanically coated and wrapped at the mill by Hill, Hubbell & Co. Process

BEFORE a champion risks his title in the prize ring he puts in weeks and weeks of intensive training, armoring his body with a protective layer of solid muscle that is proof against the hardest wallops. Unprotected line pipe is nothing but a dub amateur to corrosion. Weak spots are soon found and the pipe is down and out — and so are the investor's profits.

It has taken many years of research to find a way to make corrosion take the count, but it has been found and his blows are no longer felt by operators who protect their pipe *before* they lay a single length in the ground. Hand-coating of pipe offers partial protection, but it is a slow, uncertain and expensive operation.

The only way to lick corrosion and do the job right is to buy *pipe that has already been coated and wrapped at the mill.* The mills listed later supply pipe that is mechanically coated and wrapped by the Hill, Hubbell & Company Process. Our plants are located near these mills and are equipped to handle their output. When you buy pipe from any of these mills you know that it is fully protected against corrosion, proof against acids, alkalis and all other detrimental forces. You know it is cleaned of rust and scale before the Biturine Enamel Primer is put on. The whole process is mechanical, involving no human element. The final coats of felt and kraft paper are wound on under high tension so that nothing can touch the protective coatings of Biturine. Such pipe will stand up for years and serve without a leak.

Felt and kraft wrapping are applied under tension

The Hill, Hubbell & Company plants are equipped to coat and wrap pipe up to 24-inch by the Hill, Hubbell & Company Process. We can make the number of machine-applied hot coatings and wrappings conform to any specifications covering a wide range of combinations and materials. Ask us about them.

Hill, Hubbell & Company coating and wrapping plants are located in the following cities, for the production of the pipe manufacturers listed.

Central Tube Company	Ambridge, Pa.
Spang-Chalfant & Company	Ambridge, Pa.
Youngstown Sheet & Tube Company	Indiana Harbor, Ind.
Youngstown Sheet & Tube Company	Youngstown, Ohio
National Tube Company	Lorain, Ohio
A. O. Smith Corporation	Milwaukee, Wis.

BITURINE COATINGS

Biturine Enamel **Biturine Solution No. 5**
Biturine Enamel Primer **Biturine 70-30**
Biturine Coupling Mixture

Biturine Enamel and Primer are perfectly adapted to the Hill, Hubbell & Company Process of mechanically applying coating to the pipe at the mill.

GENERAL PAINT CORPORATION
HILL, HUBBELL & COMPANY DIVISION

PAINTS VARNISHES LACQUERS

Specialists in the science of protective coatings for industry

Chicago, New York, Tulsa, Houston, Dallas, San Francisco, Oakland, Los Angeles, Portland, Seattle, Spokane

Export Offices: 11 Broadway, New York, N. Y., U. S. A.
160 Fremont Street, San Francisco, Calif., U. S. A.

CRUDE OIL PRICE QUOTATIONS

(Revised to March 25, 1930)

EASTERN STATES

(Effective November 12, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$3.05
Bradford District Oil in National Transit Lines (Pennsylvania)	3.05
Penn Grade Oil in National Transit Lines (Pennsylvania)	3.05
Penn Grade Oil in Southwest Pennsylvania Lines (Penna.)	3.00
Penn Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.70
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.90
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.55
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	60
Keister (Pennsylvania)	1.20

CENTRAL STATES

(Effective February 15. 1930)

Posted by Ohio Oil Co.

Illinois	$1.60
Indiana	1.42
Lima	1.65
Plymouth	1.18
Princeton	1.60
Wooster	1.75

WESTERN KENTUCKY

All grades	$1.50

OKLAHOMA-KANSAS

(Effective February 15, 1930)*

Below 25 gravity	$ .60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

*This schedule was adopted initially by Carter Oil Company on January 15, and became general when Prairie Oil & Gas Company adopted it on February 15.

PANHANDLE

(Effective Jan. 15, 1930)

GRAY COUNTY

Below 29 gravity	$ .69
29 to 29.9 gravity	.75
30 to 30.9 gravity	.81
31 to 31.9 gravity	.87
32 to 32.9 gravity	.93
33 to 33.9 gravity	.96
34 to 34.9 gravity	.99
35 to 35.9 gravity	1.02
36 to 36.9 gravity	1.05
37 to 37.9 gravity	1.08
38 to 38.9 gravity	1.11
39 to 39.9 gravity	1.14
40 to 40.9 gravity	1.17
41 to 41.9 gravity	1.20
42 to 42.9 gravity	1.23
43 to 43.9 gravity	1.26
44 and above	1.29

WHEELER COUNTY

Below 30 gravity	$ .70
30 to 30.9 gravity	.76
31 to 31.9 gravity	.82
32 to 32.9 gravity	.88
33 to 33.9 gravity	.91
34 to 34.9 gravity	.94
35 to 35.9 gravity	.97
36 to 36.9 gravity	1.00
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.09
40 to 40.9 gravity	1.12
41 to 41.9 gravity	1.15
42 to 42.9 gravity	1.18
43 to 43.9 gravity	1.21
44 and above	1.24

CARSON-HUTCHINSON COUNTIES

Below 32 gravity	$ .72
32 to 32.9 gravity	.78
33 to 33.9 gravity	.81
34 to 34.9 gravity	.84
35 to 35.9 gravity	.87
36 to 36.9 gravity	.90
37 to 37.9 gravity	.93
38 to 38.9 gravity	.96
39 to 39.9 gravity	.99
40 to 40.9 gravity	1.02
41 to 41.9 gravity	1.05
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.11
44 and above	1.14

SOMERSET

Below 33 gravity	$1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE MARCH 11, 1930)

Following are the current prices offered by Standard Oil Company for crude oil at the wells: (Price per barrel of 42 gallons in fields indicated)

Gravity	Ventura*	Signal Hill	Alamitos Heights Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyte Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .70	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .55	$ .55	$ .55	$ .55	$ .55	$ .55
15-15.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
16-16.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
17-17.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
18-18.9	.75	.76	.76	.76	.76	.76	..	..	.76	.76	.76	.71	.76	..	.55	.62	.62	.62	.62	.62
19-19.9	.80	.82	.82	.82	.82	.82	..	..	.82	.82	.82	.77	.82	..	.55	.70	.70	.70	.70	.70
20-20.9	.85	.88	.88	.88	.88	.88	..	..	.88	.88	.87	.83	.87	..	..	.78	.78	.78	.78	.78
21-21.9	.90	.94	.94	.94	.94	.94	..	..	.94	.94	.93	.90	.93	.92	..	.86	.86	.86	.86	.86
22-22.9	.97	1.00	1.00	1.00	1.00	1.00	..	..	1.00	1.00	.98	.97	.98	.95	..	.94	.94	.94	.94	.94
23-23.9	1.05	1.07	1.07	1.07	1.07	1.07	..	..	1.07	1.07	..	1.05	1.04	1.01	..	1.02	1.02	1.02	1.02	1.02
24-24.9	1.08	1.14	1.14	1.14	1.14	1.14	1.14	..	1.14	1.14	..	1.11	1.10	1.07	..	1.09	1.09	1.09	1.07	1.07
25-25.9	1.13	1.21	1.21	1.21	1.21	1.21	1.19	..	1.21	1.21	..	1.17	1.16	1.13	..	1.16	1.16	1.16	1.12	1.12
26-26.9	1.18	1.28	1.28	1.28	1.28	1.28	1.24	..	1.28	1.28	..	1.23	1.23	1.19	..	1.23	1.23	1.23	1.17	1.17
27-27.9	1.23	1.35	1.35	1.35	1.35	1.35	1.29	..	1.35	1.35	..	1.29	1.30	1.25	..	1.30	1.30	1.30	1.23	1.22
28-28.9	1.28	1.42	1.42	1.42	1.42	1.42	1.34	..	1.42	1.42	..	1.35	1.37	1.31	..	1.35	1.35	1.35	1.27	..
29-29.9	1.33	1.46	1.46	1.46	..	1.46	1.39	..	..	1.46	..	1.38	1.41	1.37	..	1.41	1.41	1.41	1.31	..
30-30.9	1.39	1.50	1.50	1.50	..	1.50	1.45	..	..	1.50	..	1.41	1.45	1.43	..	1.47	1.47	1.47	1.35	..
31-31.9	1.45	1.55	1.55	1.55	..	1.55	1.51	..	..	..	..	..	..	1.49	..	1.53	1.53	1.53	1.39	..
32-32.9	1.51	1.60	1.60	1.60	..	..	1.57	..	..	..	..	..	..	1.55	..	1.59	1.59	1.59	1.43	..
33-33.9	1.58	..	..	..	..	..	1.64	..	..	..	..	..	..	1.60	..	1.65	1.65	1.65	1.47	..
34-34.9	..	..	..	..	..	..	1.71	1.32	..	..	..	..	..	1.65	..	..	..	1.71	1.51	..
35-35.9	..	..	..	..	..	..	1.78	1.39	..	..	..	..	..	1.70	..	..	..	1.77	1.55	..
36-36.9	..	..	..	..	..	..	1.84	1.46	..	..	..	..	..	1.75	..	..	..	..	..	..
37-37.9	..	..	..	..	..	..	1.90	1.53	..	..	..	..	..	1.80	..	..	..	..	..	..
38-38.9	..	..	..	..	..	..	1.96	1.60	..	..	..	..	..	1.85	..	..	..	..	..	..
39-39.9	..	..	..	..	..	..	2.02	1.66	..	..	..	..	..	1.90	..	..	..	..	..	..
40-40.9	..	..	..	..	..	..	2.08	1.72	..											
41-41.9	..	..	..	..	..	..	2.14	1.78	..											
42-42.9	..	..	..	..	..	..	2.20	1.84	..											

KETTLEMAN HILLS—55 degrees Gravity and above $1.65 per barrel. *Union Oil Company.

General Petroleum Posts following prices 11-13.9 Gr. 50c, 14-22.9 55c at Kern Front, Fruitvale, Mt. Poso Creek and Rd. Mountain districts.

(See Page 54)

The kind of *Service* that brings them back! . . . Sinclair Three-Gas Service

Sell Sinclair Three-Gas Service. Offer motorists three different fuels to select from. If they want the *Ace* of high test gasolines—one that gives quick starting, flashy pickup and brilliant performance—recommend Sinclair *Aircraft* Gasoline! Sinclair Aircraft is the Ace of high test gasolines because it is specially manufactured at Sinclair Refineries, meeting the requirements of the Federal Specifications Board for Aviation Gasoline—domestic grade—and gives sustained power. Due to its careful fractionation it is free from dissolved gases which cause gas locks, uneven distribution, galloping and engine balk.

Or—if they want high compression performance that stops knocks—there's Sinclair *H-C* Gasoline. It's all gasoline, nothing added.

And—if they prefer to pay three cents less per gallon—there's Sinclair *Regular* Gasoline—full of eager power—*great* for *economy* and *mileage*. The quality gasoline at a popular price!

A motorist doesn't have to "take" just one gasoline when he drives in for Sinclair "Three-Gas" Service . . . He can choose it to fit his own engine and his own preference.

When a motorist gets Sinclair Three-Gas Service he gets the kind of service that brings him back and makes him a regular customer.

SINCLAIR REFINING COMPANY, INC.
45 Nassau Street, New York

Atlanta ***Chicago*** ***Houston*** ***Kansas City***

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 52*)

WEST TEXAS

(Effective Jan. 15, 1930)

Crane-Upton, Crockett, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity	$ .55
25 to 25.9 gravity	.58
26 to 26.9 gravity	.61
27 to 27.9 gravity	.64
28 to 28.9 gravity	.67
29 to 29.9 gravity	.70
30 to 30.9 gravity	.73
31 to 31.9 gravity	.76
32 to 32.9 gravity	.79
33 to 33.9 gravity	.82
34 to 34.9 gravity	.85
35 to 35.9 gravity	.88
36 and above	.91

Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

HOWARD AND GLASSCOCK COUNTY CRUDE

(Effective Jan. 15. 1930)

Below 25 gravity	$ .55
25 to 25.9 gravity	.58
26 to 26.9 gravity	.61
27 to 27.9 gravity	.64
28 to 28.9 gravity	.66
29 to 29.9 gravity	.68
30 to 30.9 gravity	.70
31 to 31.9 gravity	.72
32 to 32.9 gravity	.74
33 to 33.9 gravity	.76
34 to 34.9 gravity	.78
35 to 35.9 gravity	.80
36 and above	.82

MARKHAM

The Texas Company

(Effective Jan. 15, 1930)

All grades	$ .75

CORSICANA HEAVY AND LULING

All grades	$ .75

SALT FLAT AND DARST CREEK

All grades	$1.05

NORTH AND CENTRAL TEXAS

(Effective Jan. 15, 1930)

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company)

Below 25 gravity	$ .60
25 to 25.29 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

SOUTH TEXAS

Mirando	$ .75

CLASSIFICATIONS OF GULF COAST CRUDE

The Texas Company: GRADE A—Beaume gravity not over 26.0 degrees at 60 degrees Fahrenheit; sulphur not over 0.5 per cent; in distilling 500 cc. of the crude that part of the distillate cut between 65 per cent off and 85 per cent off shall have a pour test of zero or lower. GRADE B—All Gulf Coast heavy crudes which do not meet tests for Grade "A" or for Gulf Coast light.

Humble Oil & Refining Company: GRADE A—All crude conforming to the following tests: viscosity not less than 100 seconds Saybolt at 100 degrees Fahrenheit; sulphur not over .4 per cent; Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold tests of distillates having a viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit. GRADE B—Embraces all Coastal crude which does not meet the tests for "A" grade crude.

Gulf Pipe Line Company: GRADE A—Beaume gravity not over 24 at 60 degrees Fahrenheit; viscosity not less than 100 seconds universal Saybolt at 100 degrees Fahrenheit; and sulphur not over 0.4 per cent. The yield of 250 viscosity reduced distillate at 100 degrees Fahrenheit not less than 30 per cent, and this 30 per cent not heavier than 20 Beaume, and its pour test not above zero Fahrenheit. The reduced distillate to be secured by reducing the crude with fire and steam until the bottoms have a flash of not less than 540 degrees Fahrenheit, and not more than 560 degrees Fahrenheit open cup, and the entire distillate obtained n this way reduced to a distillate of 250 viscosity. The 10 per cent cut in the original distillate having an average viscosity of 500 seconds at 100 degrees Fahrenheit to have a pour test not higher than 5 degrees Fahrenheit. GRADE B—Embraces crude which does not meet test for "A" grade.

Sun Pipe Line Company: GRADE A—Viscosity not less than 100 seconds at 100 degrees Fahrenheit Saybolt. Sulphur not over .4 per cent. Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold Test: of distillates having viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit A. S. T. M. Method. GRADE B—All Coastal crudes which do not meet specifications for Grade A crude.

GULF COAST

(Effective January 15, 1930)

Grade "A" all companies	1.05

Grade "B"

Below 25 gravity	$ .90
25 to 25.9 gravity	.93
26 to 26.9 gravity	.96
27 to 27.9 gravity	.99
28 to 28.9 gravity	1.02
29 to 29.9 gravity	1.05
30 to 30.9 gravity	1.08
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.14
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.20
35 and above	1.23

REFUGIO

(Effective January 15, 1930)

Below 25 gravity (Heavy)	.55

REFUGIO (Light)

30 to 30.9 gravity	.95
31 to 31.9 gravity	.98
32 to 32.9 gravity	1.01
33 to 33.9 gravity	1.04
34 to 34.9 gravity	1.07
35 and above	1.10

BRENHAM

All grades	1.10

STATE CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.

Texas—Two per cent of gross value.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 per cent of gross market value.

Montana—Two per cent of gross value at well.

Wyoming and New Mexico—production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

WYOMING-MONTANA

(Effective February 15, 1930)

Wyoming

Byron	$1.33
Ferris	1.60
Elk Basin	1.45
Grass Creek	1.45
Rock Creek	1.25
Lost Soldier	1.05
Lance Creek	1.53
Mule Creek	1.20
Notches	.65
Big Muddy	1.33
Osage	1.65
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.65
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

SALT CREEK

Midwest Refining Company

29 to 29.9 gravity	$ .90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA

(Effective February 15, 1930)

Sunburst	1.65
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.03
Hog Back	1.43
Maljamar	95
Jal and Lea	*

(*) West Texas price scale used by The Texas Company and Humble Oil & Refining Co.

CANADA

(Effective February 15, 1930)

Oil Springs	2.12
Petrolia	2.05

LOUISIANA-ARKANSAS

(Effective Jan. 16, 1930)

Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*

27 to 27.9 gravity	$ .78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 gravity and above	1.44

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS

Below 28 gravity	$ .70
28 to 28.9 gravity	.75
29 to 29.9 gravity	.80
30 to 30.9 gravity	.85
31 to 31.9 gravity	.90
32 gravity and above	.95

SMACKOVER

Below 24 gravity	$ .85
24 and above	1.00

What — Happens To Your Crude When the Sun Shines?

is it protected with

B.S.&B. Perfection Vapor Pressure TANKS

?

Have you ever realized the havoc the sunshine plays on your crude? It acts like the fire under a still. The heat causes an expansion of the crude, and its volatile vapors quickly pass into the atmosphere—to be lost forever unless retained within the tanks.

Then when the sun goes down, and the tank cools, it contracts and there is created a vacuum.

If your tank is not absolutely vapor pressure tight you lose a high percentage of those valuable vapors which lowers the specific gravity—consequently the market price.

Here is what the Bureau of Mines, of the U. S. Dept. of Commerce, has to say about evaporation loss due to the sun's rays:

"The breathing losses are caused by atmospheric variations. Probably the greatest are the changes in atmospheric temperature which cause changes in temperature of the vapors in the tank. During the day, as the temperature increases, the gasoline-saturated vapors in the tank expand and are forced out into the atmosphere. At night the vapors are cooled and contract, drawing into the tank fresh air, which becomes saturated with gasoline vapor, and is forced out of the tank during the following day. In addition to the maximum and minimum temperature variations there are many smaller variations throughout a twenty-four hour period caused by showers, clouds, winds, and other atmospheric conditions which likewise cause the tank to breathe." Serial No. 2834, October, 1927.

B.S.&B. Perfection Vapor Pressure TANKS

The B.S.&B. Perfection Vapor Pressure Tank is designed to retain properly under sixteen ounces the light fractions of the crude. Let it be the watchdog of *your* crude.

It is not only leak-proof, and strong enough to prevent bulging under a pressure of 16 ounces, (the maximum ordinarily developed by sun's rays on quiet crude), but it is also designed to prevent collapsing due to any excessive vacuum, by the special B.S.&B. Thief Hole Pressure Vacuum Valve, which operates automatically at 16 ounces pressure or 2 ounces vacuum. Thus the tank is protected by the valve just as the crude is protected from loss of evaporation. *And 5 barrels per 24 hours is a frequent loss by evaporation in an ordinary 250-barrel tank.* So it's worth saving.

"Service on the Dot"
"Service on the Spot"

We've an interesting story to tell you about the effect of the sunshine on crude stored in lease tanks. May we tell you the story? Let us send a man (there's one near you now) on a catalog. Simply address Dept. B-20.

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North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Crude Market Substantially Improved in All Sections

FORT WORTH. — Encouraged by a 20,000-barrel cut in the daily output of the Yates field effective 7 a. m. March 20, operators in Texas are reviving hopes that a balance will be reached shortly on crude demand and production within the state, thus paving the way for the restoration of prices to the former levels. The seasonal increase in gasoline demand is reported from all refining centers, thereby reflecting a substantial improvement in the crude market situation in fields near independent plants, particularly in the North Texas district. The Texas Panhandle district and the Refugio field, located in the southwestern part of the state, threaten immediate production increases to offset constructive conservation work accomplished in other fields of the state in recent months. These two areas are outstanding factors in the general Mid-Continent situation, and a reasonable amount of curtailment in both, or either, may provide the turning point in the crude price structure.

Operators in the Oklahoma-Kansas section of the Mid-Continent are known to have adopted conservation measures that virtually restore a balance of crude supply and demand, with the aid of normal increased demand at this period, and are waiting for similar action to be taken by producers in Texas. The situation in Texas has been aggravated for the past two months by two factions developing within the ranks of the producers. One group sought and were successful in causing new laws to be enacted governing crude purchasers and pipe line companies. The legislature adjourned its special session March 20, and the group that was fostering a series of bills designed to regulate the larger oil companies is again giving thought to developing a program that will lessen the over-production of crude within the state, and later result in better crude prices.

An equitable plan of curtailment can whip the Panhandle and Refugio areas in shape in quick order, as the former is only producing 92,800 barrels daily, with comparatively few wells of a prolific caliber, while the Refugio field is producing less than one-half this volume daily. Other than a few isolated areas in Carson and Hutchinson Counties, the excess production in the Panhandle is charged to the Finley-Brown and Lefors fields, Gray County. Major companies and substantial independent units own the wells and are doing the new drilling that is causing the disturbance. An ambitious proration plan for the entire Panhandle was presented to the Texas Railroad Commission at Pampa March 21 at a joint session of operators and representatives of the commission, but strong opposition was voiced against the measure because of the handicap placed on the older leases and fields not materially to blame for the unsettled local market conditions. Supporters of the plan insisted that waste of oil and gas is taking place, while conflicting testimony was offered also, thus resulting in the commission refusing to act until a more thorough investigation can be made as to the allaged waste. The proposed proration plan for the Panhandle district is not apt to be adopted by the commission, although the latter body will act in correcting waste of oil and gas if it is established. In the meantime the Gray County operators are carrying out their development programs without restrictions on drilling and production.

Popular grades of crude are being produced and offered in tank car and tanker lots by Refugio field crude marketers at prices that undersell similar grades of oil produced from the interior sections of the state. These price quotations and actual sales are having a disturbing influence in the general market situation to a greater extent than the volume of oil produced justifies. The deeper sand horizons are coming in for more attention of the Refugio lease owners, and better prices are needed to offset the extra drilling cost. Humble Pipe Line Company is scheduled to begin running oil from the field late next month, and may post a price in proportion to the deeper drilling costs, while this line will also absorb a portion of the oil now moving out in tank cars to refineries at Toledo and other middle western points, where the raw crude has also become popular with industrial plants as a substitute for refined fuel oil and distillates.

YATES FIELD PRORATION

Daily allowable production for each company in the Yates field since the output has been reduced from 130,000 to 110,000 barrels daily is shown below with estimated potential production figures and number wells included:

Company—	Number Wells	Potential Production per day	Revised Production Allowance
Mid-Kansas-Transcontinental Oil Company	119	2,917,580	52,756
Gulf Production Company	48	496,916	15,069
California Company	58	908,700	13,952
Simms Petroleum Company	12	282,588	6,349
Shell Petroleum Corporation	29	168,532	5,218
McMan Oil & Gas Company and Continental Oil Company	17	363,688	5,083
McMan Oil & Gas Company	22	107,112	4,003
Humble Oil & Refining Company	19	56,662	2,519
Phillips Petroleum Company	9	13,630	1,744
Cosby Producing & Royalty Company	2	1,320	660
Savoy Oil Company et al	3	3,754	660
Continental Oil Company	8	58,180	*620
Transcontinental Oil Company	3	856	415
Grayburg Oil Company	8	820	410
Kirby Petroleum Company-Edson Petroleum Co.	1	460	230
Skelly Oil Company	2	370	177
Kirby Petroleum Company	1	150	75
Plymouth Oil Company	2	90	45
Dixie Oil Company	1	30	15
Total	364	5,381,438	110,000

Market Strengthens in South Vernon

The South Vernon district, Wil-

barger County, is passing out of the picture as a weak crude market area in the North Texas district, and as evidence of this the Sinclair Crude Oil Purchasing Company and Waggoner Refining Company have resumed running and paying in full their former normal takings after prorating for about two months. The Texas Company previously announced discontinuance of proration rules. Humble Oil & Refining Company is expected to go back to 100 per cent runs and purchases in the county shortly.

Representatives of the Waggoner Refining Company, which engages in an extensive crude marketing business as well as supplying its own plant near Electra, report receipt of a substantial increase in crude demand, including spot orders ranging up to 100,000 barrels daily at current prices. The greater portion of the oil produced in Wilbarger County, which averaged 24,800 barrels daily last week, is produced from fee lands of the W. T. Waggoner estate, and the latter has been enforcing a rigid shutdown order on unnecessary drilling for several months, thereby eliminating the normal volume of new production. The crude market situation, excepting a few isolated areas, is firm in North and Central West Texas districts.

Drilling is mounting to higher levels each week in Van field and outlying wildcat areas comprising the Central East Texas district, but production in the former is being held to about 10,250 barrels daily by the Pure Oil Company. Tank car movement is the only market outlet for Van crude, and the Pure Oil Company has exclusive charge of field operations in the unitized area as well as marketing the oil. The company is at work on a trunk line to the coast. A deal is pending to increase tank car shipments of Van crude from 6000 to 10,000 barrels daily on the Louisiana Oil Refining Corporation's contract, thus causing the output of the field to climb an equal amount after April 1, but further production increases will be retarded somewhat until the direct line is in service.

The West Texas district as a whole now has a firm crude market structure, and distress priced oil is no longer available, although operators in the Howard-Glasscock County district are not marketing as much oil as their proration schedule permits.

Winkler County enjoys the best crude market demand, and because of the limited supply, nearby refineries have been forced to make other connections, as illustrated by the fact that the Burford Oil Company extended its pipe line from the Hendrick field to the Judkins field, Ector County, to adequately provide for its Pecos plant. The El Paso plant of the Pasotex Petroleum Company has likewise had to make connections in New Mexico to offset declining crude supplies in Winkler County.

Failure of the Humble Oil & Refining Company, which was one of the first major units to adopt a six-day

(Continued on page 60)

Operators Divided in Hearing On Panhandle Proration

PAMPA, Texas.—Conflicting testimony was offered by Panhandle operators as to the needs of a district-wide proration plan to be endorsed and enforced by the Texas Railroad Commission in the interest of conservation during a hearing held here on the subject March 21. C. V. Terrell, member of the commission, presided at the hearing, and was assisted by R. D. Parker, chief supervisor of the oil and gas division. The majority of the operators in the district disapproved of the proration plan in the form submitted at the hearing, and it is not likely that it will be adopted by the commission without modifications, although Terrell announced that the matter would be taken under advisement. In the meantime a checkup on alleged waste of oil and gas is to be made by Parker and his deputy supervisors throughout the district.

The Panhandle district is a soft spot in the general crude market situation, and is one of the few areas needed to be curbed in Texas to open the way for better prices. Gray County has two areas that are largely responsible for the reported excess production, although Carson and Hutchinson Counties are minor contributors. Companies that have been among the leaders in developing virgin leases and adding to the over-production situation in Gray County were charged with being responsible for the proposed proration plan by operators that testified against its adoption by the commission.

Preliminary steps toward placing Panhandle oil fields under proration rules of the commission were taken during a meeting of operators here March 14. A committee consisting of F. E. Heath, geologist and engineer for the Sun Oil Company, chairman; G. S. Bays, McMan Oil & Gas Company; J. H. Clark, Midwest Exploration Company; A. C. Smith, attorney for The Texas Company; and J. M. Dodson, an independent producer, were authorized to draft a plan. This committee prepared a proration plan similar to that in general use in West Texas prorated areas, fixing production allowances on a basis of producing acreage and 75 per cent for well potentials on each 80-acre unit. It was proposed that Gray, Carson and Hutchinson Counties be treated as a single field, and all 80-acre tracts, or units with completed wells averaging less than 100 barrels per day each be exempt from restrictions. Rigid restrictions on drilling of virgin leases were included, with 90-day production penalties for new completions on short time leases, with wells removed 1320 feet or more from the nearest production.

The Panhandle representatives of the Independent Petroleum Association of Texas figured prominently in the opposition made against the plan, and prior to the meeting supplied literature to all operators in the district that expressed the views of the association on the movement to curb drilling and production. Joe Danciger, vice-president of the Danciger Oil & Refining Company, was the principal speaker for the association.

Testimony was given by Smith, Jack Davis of the Humble Oil & Refining Company, E. F. Foran, petroleum engineer, and others who sought to prove the needs of curtailment rules being applied by the commission.

Underwood Nazro, vice-president Gulf Production Company, Houston, attended the hearing and voiced the disapproval of his company in regard to the plan as offered. He qualified his statement by assuring the commission that his company had been and would continue to drill only offset wells, and fulfill lease obligations.

Waste of Oil and Gas Claimed

Waste of oil and gas above the surface as well as underground was claimed by proponents of the plan, and due to this testimony an investigation is to be launched by the oil and gas division of the commission to locate the waste and correct same in accordance with existing conservation laws.

The Finley-Brown field, Gray County, offers a threat of a big gain in new production because of a number of wells now nearing completion on leases of the Magnolia Petroleum Company, The Texas Company, Phillips Petroleum Company, and Champlin Refining Company-Danciger Oil & Refining Company. New work has been launched within the past two weeks on the north end of the field by Prairie Oil & Gas Company, Phillips Petroleum Company, Sun Oil Company, Gulf Production Company, Humble Oil & Refining Company and Wilcox Oil & Gas Company to further swell the output of the county. These companies are drilling on or near prolific oil producers. However, the majority of these unusually large wells have had the last string of casing set above or in the heavy gas producing formation over-lying the oil bearing lime formation, thereby causing the dry gas to jet the oil from the hole.

The crude market situation in Gray County is being improved somewhat by reason of private market outlets having just been prepared by the Danciger Oil & Refining Company through the partial completion of its new refinery at Pampa, and through the Wilcox Oil & Gas Company having acquired the Pampa Refining Company's plant, while Phillips Petroleum Company now has a six-inch line extending from its best leases in Gray County to tank farm and refinery near Borger.

Van Success Encourages East Central Texas Campaign

CORSICANA, Texas.—Rapid strides are being made in restoring the Central East Texas district to its former position as one of the most active drilling centers in the state. During the past week 10 new locations were authorized for immediate drilling in the Van field, which has 10 completed wells and 14 additional tests in process of completion, or drilling below 1000 feet, within the unitized area. About 50 wildcat tests scattered over a dozen counties in a north and south trend from the Van field, Van Zandt County, are underway or getting started, with a large number of additional drilling obligations being assumed as lease activity spreads. The Woodbine sand horizon, which scored high honors in former years through its prolific oil yield at Mexia, Powell, Wortham and other nearby fields, is the goal of these tests.

Based on the law of averages for successful strikes through wildcat activity in the district one or more new oil producing areas are destined to be uncovered before the end of the year. Pure Oil Company established a precedent for the district in uncovering the Van field with the first deep test. Major and independent companies as well as small operators, with meager operating capital, are participating equally in the leasing and wildcat drilling. Independents with drilling blocks offering favorable geology are having success in disposing of one-half interest, more or less, for cash sums that virtually assure a "free ride" in the event of a dry hole. The Owen-Sloan Oil Company, subsidiary of the Laurel Oil & Gas Company of Tulsa and Philadelphia, has purchased interests in tests underway in Rains, Smith and Wood Counties.

Van Responsible

The spectacular performance of the Van field in building up a large potential production from the first 10 wells completed over a wide area without a failure is responsible for this revival of wildcat exploration work in the Woodbine sand belt. Duplicate strikes are being sought by the wildcatters. Lease ownership in the Van field proper is confined to about one-half dozen companies, and under the unit plan of development the production is being restricted to the current market outlet, with the Pure Oil Company the sole operator.

Lease, royalty and offset obligations are forcing the development of the Van field unitized area on a large scale, and most of the 10 new locations just authorized are located near the town of Van. All except one of the new group of tests are to be drilled on leases contributed to the pool by the Pure Oil Company. Irregularities in the oil producing horizon on the southeast side of the field were in evidence early this week when a trio of tests found it necessary to drill past the expected horizon to obtain the desired oil sand saturation.

Shell Petroleum Corporation's I. P. Tunnell 3 was coring at 2905 feet early this week in the oil horizon after cementing casing at 2512 feet, while the same company's E. L. Fowler 1, a south offset made a big producer at 2699 feet. Pure Oil Company's A. D. Clark 1, a west offset to The Texas company's Tunnell 1-A, flowed 330 barrels by choke at 2880 feet, while the offset proved slightly better at 2771 feet. The Texas Company's Tunnell 1, an east offset to its Tunnell 1-A, was coring below 2815 feet at last reports. The Texas Company's R. V. White 1, an east offset to the north well of the field on the Magers farm, is re-setting liner at 2990 feet, or 127 feet deeper than the nearby producer. Pure Oil Company's R. C. Crim 1, which has been in process of completion for more than a month, cored into a lower oil bearing sand and is running liner at 3082 feet to make a test of production, with a light well assured from the upper sand series. Production in the Van field is averaging about 10,250 barrels daily from 10 completed wells and all are flowing via chokes.

Van Zandt County

Drilling blocks assembled by independent companies and operators in the northeastern portion of Van Zandt County and radiating in all directions from the town of Grand Saline account for more than a half dozen of the wildcats underway or rigging up in the district. These tests are within five miles of the town, which derives its name from the presence of salt domes that have been a source of commercial salt for many years. A contract depth of 3500 feet is being assumed by the promoters of these wildcats, and production is anticipated from the Woodbine sand formation. Favorable geological data has been developed to support a few of these wildcats, but the majority are being drilled because the acreage was available and a lease play was in progress near the known domes. Operators with headquarters at Dallas, Texas, are behind most of the projects.

Cranfill - Reynolds Company is reported to be making plans to drill a test on the J. H. Edwards 86-acre tract, J. Burleson Survey, being about one mile southeast of Grand Saline. About two miles due east of the above proposed location, a California concern is reported to be planning to drill in the southwest corner of the M. A. Walker Survey, and on the C. L. Childs farm, while a second test for this same survey is being considered by Les Ross of Fort Worth and Florida interests, to be located on the D. Prestige farm. Van Zandt Oil & Development Company, Dallas, is drilling below 2800 feet on the Robinson-Sharp 100-acre tract, J. B. Ybarbo Survey, being about 4½ miles east of Grand Saline and near the highway. W. H. Reid and L. J. Moore of Dallas organized the company, and awarded a 3000-foot contract to John Sigmund of Aransas Pass, Texas.

Warren T. Daniel, Dallas, and associates are rigging up for a 3500-foot test to be drilled in the northwest corner of the Fannie Cumby 156-acre farm, John Wright Survey, about 3½ miles northwest of Grand Saline. A block of about 1000-acres was obtained by H. C. Cate, Dallas, for the test, and the latter retains nearby lease protection. Bell et al of Dallas have the rotary contract. Cate assembled a block of about 4100 acres, centering about four miles northeast of Grand Saline late last year, and sold 3500 acres to the Petroleum Holding Corporation of New York City. The latter has since made a deal for Pandem Oil Corporation, Wichita Falls, to drill a 3500-foot test in the northwest part of the R. L. Brin and W. W. Gibbard 714-acre farm, Raymond Sunigas Survey. Wheelock & Collins, Corsicana, are the contractors, and will commence drilling early this week to fulfill lease contract.

Roy Jenkins and associates of Dallas have assembled a block of approximately 3000-acres, beginning about two and one-half miles north of Grand Saline and extending across the Sabine River into Rains County, with a tentative location made on the J. H. Cox farm, S. P. Ry. Survey, abstract 887.

Contract for Test

Everybodys Oil & Gas Company, Dallas, is reported to have awarded contract to Thornton & Taubert, Wichita Falls, for the drilling of a 3500-foot test on a block of about 1500 acres assembled about two miles north of Grand Saline.

In northwestern Smith County and due east of Grand Saline, Dan Daniels and J. K. Adair, Fort Worth operators, are clearing titles to start drilling shortly on a large block of leases to try for production in the Woodbine, while rotary rig has been moved in for

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BEAUMONT HOUSTON SHREVEPORT FORT WORTH

the drilling of a 3500-foot test in southeastern Rains County and northeast of Grand Saline by D. H. Byrd et al. A block of about 5000 acres, centering on the Rains-Wood County line and south of Alba was assembled by Byrd et al, and then a deal was made for the sale of an interest to the Owen-Sloan Company. Location was made in the northeast corner of the J. D. Hill 150-acre tract, Friend-McMahan Survey. R. H. Dearing & Sons, Dallas, have the drilling contract to spud by the close of March. In western Smith County and about 10 miles southeast of Grand Saline, E. L. Chapman, Fort Worth operator, and A. M. Sutton, Arkansas operator, are drilling below 1450 feet on their J. F. Hammon 1, Jas. Reid Survey, A-799. The location is in the southeast corner of the 62-acre tract. Sutton is making temporary headquarters at Tyler, Texas, and turned a portion of the original block to Chapman, who is financing the test to the Woodbine horizon.

Canton Area Scene of Wildcat Activity

The Canton area in south central part of Van Zandt County is also sharing liberally in wildcat drilling activity. Central Oil Company & H. L. Hunt's S. J. West 1, A. C. Walters Survey, resumed drilling last week after having been temporarily abandoned at 3535 feet February 22, and at last reports was drilling below 3800 feet, with funds available to go to the 4200-foot level. Hartt Petroleum Company, Dallas, is moving in materials to drill in the southwest part of the Dr. M. L. Cox 300-acre tract, A. C. Nugent Survey, being about one mile northeast of Canton. Texas Chief Oil & Royalty Company's J. P. Foster 1, F. Montgomery Survey, remains shut down after setting surface pipe. Wildcat tests drilled to 3000 feet by W. H. Kerbow of Henrietta, Texas, and by R. C. McElmurray of Corsicana have been abandoned.

In Wood County, Big Indian Oil & Development Company and Tidal Oil Company's wildcat test on the Mrs. R. J. King 109-acre tract, Wm. Barnhill Survey, located north of Quitman, is ready to spud. The former sold Tidal Oil Company an undivided one-half interest in the 2500-acre block and a 4000-foot test for $25,000 cash and all the necessary pipe. A top notch rotary outfit has been set up by the Big Indian Oil & Development Company, which maintains headquarters at Kansas City, Missouri, to make this deep test with its own crew.

The joint test of Westexas Oil & Royalty Corporation, Fort Worth, and Owen-Sloan Company in southwestern Wood County and about one and one-quarter miles south of Mineola is occupying the spotlight of interest while drilling at 2360 feet. This wildcat test is located in the southeast corner of the Negro Orphanage 80-acre tract, Chas. E. Rives Survey, and is being drilled by Frank Foster of El Dorado, Arkansas. The top of the Midway formation was encountered about 700 feet higher in this test than the crest of the Midway horizon in Deep Rock Oil Company et al's recent failure about six miles to the south. Owen-Sloan Company acquired a substantial interest in the test and 1000-acre drilling block some few weeks ago along with other acreage for a consideration reported at $38,500 cash, while The Texas Company paid approximately $25,000 cash for an extensive royalty spread near the location early in February. Pure Oil Company controls the bulk of the acreage surrounding the block.

George McCamey of Fort Worth and associates have assembled a block of about 7000 acres near Cason and straddling the Morris-Titus County line, and staked location 450 feet from the north and 150 feet from the east lines of the P. M. Staggers 65½-acre tract, G. Forbes Survey, Morris County. R. H. Dearing & Sons are moving in rotary to drill a 3000-foot test on contract, with drilling required by March 29.

Crude Market Substantially Improved in All Sections
(Continued from page 57)

week refining schedule, to find a market for former schedule of crude takings from the Yates field led to the reduction of the field's allowable production from 130,000 to 110,000 barrels daily. Curbing of crude purchases by this company necessitated the use of storage tanks should the field be allowed to continue at its peak level, and when such a condition prevails the Texas Railroad Commission's rules governing proration automatically authorize a reduction in output, with the operators approving same. A unanimous vote of approval was made by operators for a 20,000-barrel reduction for a period of 60 days, according to W. A. Moncrief, chairman of the proration advisory committee, and the official order of approval was granted by the commission March 18. Umpire Ray Richmond put the reduction into effect March 20.

Yates Potential 5,381,438 Barrels

Yates field is credited with an estimated potential production of 5,381,438 barrels daily from 364 flowing and pumping wells, with only 55 listed as making water. This field pioneered proration methods that have since been adopted with success in other fields of the state as well as in California, Oklahoma and Kansas, and almost perfect cooperation is being given by the well owners in the former area.

A. C. Moore, chief geologist for the Lloyd Oil Corporation, Fort Worth, Texas, has been elected a vice-president of the company to succeed R. G. Baker, who resigned recently.

Yates Extension Test Has Big Gas Flow

San Angelo.—An estimated flow of 19,000,000 cubic feet of gas at 1490 feet was developed one mile west of the southwest edge of the Yates field early this week through the wildcat effort of Transcontinental Oil Company and Arkansas Fuel Oil Company on the Smith & Mathews land. First gas was encountered at 1465 feet, where casing was cemented, and the heaviest flow came from the last two feet of hole drilled. This well is located near the center of south line of northeast quarter of Section 11, and will be deepened to try for oil production. Transcontinental Oil Company and Arkansas Fuel Oil Company own all acreage in between the gasser and the field proper.

Staking of three corner locations in the Judkins field, Ector County, within the past week make offsets that will shortly require a total of 12 new tests. The Texas Company and Cosden Oil Company's Connell 7 has been ordered drilled in the northeast corner of the southeast quarter of Section 1, Block 16, being a west offset to the row of University strip leases. In all probabilities a double row of derricks will be set up along this property line.

Gulf Production Company is moving in materials to drill in the northeast corner of its University lease and in the southeast corner of its University "A" lease, thereby causing three offsets to each, or eight new tests on proven acreage. These new locations close the gaps in the double row of tests extending north and south for exactly two miles. Three or four completions are due in the heart of the Judkins field during the coming week, and from then on new wells will be scored in rapid order as the field has 23 cable tool rigs running.

The fourthcoming sale of leases on tracts held by the University of Texas in the field proper will probably result in high bonuses being paid and also cause a fresh outbreak of drilling.

A bid is being made by P. H. Williams of San Angelo, for deep hole honors outside of California in the drilling of a wildcat test on the Ashe Ranch, Irion County. This test had reached a depth of 8100 feet late last week, using cable tools. The present record outside of California is held by the Big Lake Oil Company's University "3-C" Big Lake field, Texas, and the latter has been unable to make progress in calsite at 8540 feet, owing to upper oil and gas production making it necessary to drill in a loaded hole.

R. J. Berry of Tulsa has been elected president of Illinois Pipe Line Company, replacing Ward Miller, Sr., of Lima, Ohio. Mr. Berry is also president of the Mid-Kansas Oil & Gas Company, operating subsidiary of Ohio Oil Company, which also controls a majority interest in Illinois Pipe Line Company.

Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Nine New Producers Increase Refugio Production

HOUSTON. — Total oil recovery from the Refugio field seems likely to reach 5,000,000 barrels before the close of March. During the week ending March 24, the average production of the field was 38,947 barrels daily from 101 wells, all of which were flowing. In the meantime there were three completed wells temporarily off production, having sanded up. The record of oil production at Refugio since completion of the discovery oil well, The Texas Gas Company's Clint Heard 1, on July 28, 1928, has been as follows:

Period	Bbls. Prod.
1928	56,600
1929	1,992,950
January, 1930	784,382
February	973,604
March (24 days)	935,250
Total	4,742,786

During the past week there were nine completions at Refugio, four in the sands found below 5000 feet, and five in the 3700-foot sand. Each of the five shallower wells is a fair producer. Of the four deep wells that were completed two were failures and were abandoned, one is a gas well and the other an oil producer.

The new deep oil well is Ryals 1 of Pearson Properties, Incorporated. Total depth of the hole is 5482 feet, and six and five-eighths-inch casing was cemented at 5474 feet. The well came in flowing 1160 barrels pipe line oil daily through a one-half-inch choke and a three-quarters-inch choke, registering 1600 pounds pressure. This well is located in the eastern portion of the field.

The new deep gas well completed during the week is also in that part of the field. It is Morgan Oil Corporation's Carlysle 1, Block 2. It has total depth of 5470 feet, with eight and one-fourth-inch casing cemented at 5460 feet. After being swabbed in it tested 1900 pounds pressure, showing dry gas.

The two deep tests which have been abandoned, both of them also being located on the east side of the field, are Morgan Oil Corporation's Rooke 1, on a 114.5 acre tract, dry at 5924 feet, and The Texas Company's Shelton 1, dry and abandoned at 6050 feet.

Including Ryals 1, the new producer of Pearson Properties, Incorporated, there are now seven wells on the east side of Refugio yielding high gravity oil from sands found below 5400 feet. Six of them are producing from the so-called "O'Brien" sand, found around 5500 feet, and the seventh, Union Producing Company's M. F. Lambert 1, located two miles northeast of the nearest of the O'Brien sand wells, is producing a different oil from 5800 feet. Aside from these oil wells, there is now the new gas well of Morgan Oil Corporation, mentioned above, producing from the 5500-foot sand.

Average daily production of the seven wells yielding high gravity oil for the week ending March 24, was as follows:

Company and Well—	Daily prod.
Union Producing Company—	
Mitchell 2	546
O'Brien 1	547
Powers 2	115
M. F. Lamber 1 (5800-ft well)	1,499
Morgan Oil Corporation—	
Tom Heard 1, Block 3	360
Pearson Properties, Inc.—	
Ryals 1 (av. for 3 days)	497
Saxet Oil Company—	
Ryals 1	1,241
Total	4,846

Rich In Gasoline Content

This high gravity oil is rich in gasoline content, and is being used altogether by the United Gas Company (of which Union Producing Company and Morgan Oil Corporation are subsidiaries) in its Laredo, Texas, refinery, operated as the Motor Fuel Products Company, the crude being transported to that point by tank cars. Pearson Properties, Incorporated, and Saxet Oil Company, both of which concerns are headed by W. L. Pearson of Houston, are shipping Refugio crude by tank car to Toledo, Ohio, Chicago, and other Middlewestern points, and those shipments include the high gravity oil of the 5500-foot wells, which is being used "raw" as distillate. The high gravity oil is very popular because of the low crude price f.o.b cars. The current posted price on the high gravity Refugio crude is 90 cents for 30 to 30.9 gravity, with a three-cent differential up to $1.10 for 35 gravity and above. There is a flat posting of 55 cents on all Refugio crude below 25 gravity, in which classification all the production of the 3700-foot sand falls.

The five new wells completed in the 3700-foot sand at Refugio during the past week are as follows: Houston Oil Company's Shelton 1, Town Block 100, which came in flowing 416 barrels pipe line oil per day through a one-half-inch and a three-eighths-inch choke, with eight and one-fourth-inch casing set at 3671 feet, and the bottom of the hole at 3683 feet; pressure on the well was 800 pounds; the same company's Hotel 1, Block 48, a workover, originally drilled to 3702 feet, came in flowing 500 barrels of oil and water daily through two five-eighths-inch chokes when plugged back to 3696 feet; Independent Oil & Gas Company's Claud Heard 3, which was drilled to 3696 feet, and in which nine and five-eighths-inch casing is set at 3683 feet, came in flowing at the rate of 1400 barrels daily through two five-eighths-inch chokes, showing 115 pounds working pressure; Korona Oil Company completed Zarsky 1, Town Block 91, for 700 barrels initial production, pipe line oil, through two nine-sixteenths-inch chokes, the working pressure being 45 pounds; total depth of the hole was 3696 feet, and six and five-eigths-inch casing was cemented at 3689 feet; and Morgan Oil Corporation's Fox Heirs 1, Block 70, which came in flowing 565 barrels, 12 per cent salt water at 3701 feet.

Aside from the newly completed wells, there are various tests at Refugio now at interesting depths, nearing completion in the 3700-foot and in the deeper sands.

Tests of Deep Sands

Mission Drilling Company's Moss 1, Town Block 110, which has eight and one-fourth-inch casing cemented at 5493 feet, with bottom of the hole at 5493 feet, tested salt water, following drill stem test which showed two fourbles of mud with some oil, and will be plugged back a few feet to test again. The same company's O'Brien 1 is drilling lime and shale at 5319 feet.

Morgan Oil Corporation's Powers 1 is drilling sandy shale at 5496 feet.

Union Producing Company's M. F. Lambert 2, an offset to the discovery well of the 5800-foot sand, is drilling lime rock at 4581 feet. The same company's

Rose Lambert 1-A logged gas at 6468-72 feet, has a total depth of 6475 feet, and has cemented five and three-sixteenths-inch casing at 6468 feet preparatory to making a test.

Houston Oil Company's Tom Heard 1, Block 16, cored sand with slight oil show at 5101-5108 feet, and is preparing to make a drill stem test. The same company's Doughty 1, Block 23, has cemented nine and five-eighths-inch casing at 4466 feet.

Independent Oil & Gas Company's J. F. B. Heard 1-C is drilling gumbo and lime at 4734 feet. That company's T. P. Shelly 1 swabbed dry at 5487 feet, and will probably be abandoned. O'Brien 1 has total depth of 6489 feet; it is standing. Mercy Academy 1 is drilling rock at 3868 feet.

Several of the 3700-foot tests are also at interesting stages. Sun Oil Company's Buckley 3, which has eight and one-fourth-inch casing cemented at 3670 feet, with the bottom of the well at 3693 feet, swabbed salt water and will be plugged back. Stroube & Stroube's test is fishing at 3682 feet. Union Producing Company's Shelly 4 is drilling gumbo and lime at 3593 feet; Morgan Shelly 3 is drilling gumbo at 2941 feet; Morgan-Vance 3 is drilling shale at 2900 feet.

Fox & Heflin's Fannie Heard 1, which showed 900 pounds gas pressure, and made a spray of oil through three-eighths-inch choke, when tested at 3688-3700 feet, is being worked over; liner will be pulled and reset. Houston Oil Company's Rooke 14 is drilling shale at 3555 feet; Dorsey 1, Block 78, tested salt water at 3702 feet, and has been plugged back; Fannie Heard 9, a workover, is preparing to set casing to test at 3690-99 feet; and Leissering 1, Block 55, is in sandy shale at 2468 feet.

Independent Oil & Gas Company's Helen Reilly 1, which plugged back and made a test at 3690-96 feet, showed salt water and will be deepened; West 3, has nine and five-eighths-inch casing cemented at 3676 feet.

E. M. Jones' J. F. B. Heard 1-A, which has casing set at 3673-82 feet, swabbed oil and then sanded, and is being cleaned out; Jeter 1-A tested salt water at 3711 feet, and will be deepened.

Refugio Production

Average daily production during week ending March 24.

Company	No. wells	Net oil
Benedum-Trees Oil Company	2	480
Herman Heep Oil Company	2	3,252
Dr. H. E. Hewitt	1	77
Union Producing Company	26	9,717
Houston Oil Company	18	4,883
Independent Oil & Gas Company	9	2,833
E. M. Jones	1	....
Larco Oil Company	2	1,046
Morgan Oil Corporation	13	5,945
T. P. Morgan	1	512
Pearson Properties, Inc.	7	2,403
Refugio Oil Corporation	3	3,544
Saxet Oil Company	11	3,468
Sun Oil Company	3	690
The Texas Company	1	10
Texas Gas Company	1	87
Total	*101	38,947

Average per well per day: 385.6 barrels.

*Table does not include two wells of Sun Oil Company and one of Union Producing Company that were temporarily off production.

Gulf Building Pipe Line To Serve Hankamer

Houston.—Gulf Pipe Line Company, transporting affiliation of Gulf Production Company, has begun construction of an eight-inch oil line from the new Hankamer field, southwestern Liberty County, to its main line at Sour Lake. From that point the Hankamer crude will be moved southward through the trunk line to Port Arthur, where the Gulf Companies operate a 120,000-barrel refinery and maintain tanker loading facilities.

The new eight-inch line will be the first outlet for Hankamer crude. That field now has three completed oil wells, all producing from different sands, although located within a few hundred feet of each other.

Gulf Production Company discovered the field in 1928, using seismograph, and holds leases covering most of the dome. It has been the only operator to drill in the area.

The discovery well, Boyt 1, located in the H. & T. C. Railroad Survey 22, came in June 6, 1929, flowing 700 barrels of 19 gravity pipe line oil daily, when one joint of screen had been set at 2674 feet. The second producer, Boyt 2, came in flowing 500 barrels of 20 gravity pipe line oil daily at 2925 feet. The third producing well of the field, Boyt 3, was completed about two weeks ago, and it opened up the most promising of the three sands of the field, flowing 2300 barrels of 27.5 gravity pipe line oil daily through a one-half-inch choke and registering 925 pounds pressure, two joints of screen having been set at a total depth of 4890 feet, with some blank pipe between the two joints of screen.

Hankamer field is said to be one of the non-salt dome type, in the class with Orange, Goose Creek, and the new Port Neches field, Orange County. It is 12 miles due south of Hull, one of the leading Coastal fields, and five miles due east of Moss Bluff dome.

Complete Five New Wells At Barbers Hill

Houston.—Barbers Hill was the leading field of the Gulf Coast, aside from Refugio, during the past week, from the standpoint of completions, with a total of five new oil wells finished there.

The largest well among the five was Mills Bennett Production Company's Wilburn 3 on the east side of the field. When seven joints of screen had been set at total depth of 5239 feet the well came in flowing 2800 barrels of 27.4 gravity pipe line oil daily through a one-half-inch choke. The same company's Collier 3, also in the same portion of the field, came in flowing 1500 barrels daily from total depth of 5432 feet.

Humphreys Corporation completed McLean 1 as a 900-barrel producer when two joints of screen had been set in a sand at 5325 feet. This well was drilled originally to 6072 feet but was then cemented back.

Sun Oil Company finished two of the new Barbers Hill wells. Wilburn Fee 4 came in flowing 1400 barrels daily, 27.5 gravity pipe line oil, through a one-half-inch choke, with six joints of screen set at 5287 feet. J. F. Wilburn 4, which has five joints of screen set at 5314 feet, came in for 400 barrels initial production, over 50 per cent salt water.

As a result of the above completions, production at Barbers Hill was boosted considerably during the past week. The average daily production for the week ending March 22 was 27,800 barrels, as compared with 23,000 barrels daily for the previous week. The former figure is probably the highest yet attained by the Barbers Hill field, and it is considerably higher than the daily yield of any other Coastal field at present with the exception of Refugio. During the same period, the week ending March 22, the Humble field produced 19,200 barrels daily, and Spindle Top produced 15,500 barrels daily. Those two are the next largest producing fields of the Gulf Coast at present.

Assumption Parish

Houston. — Gulf Refining Company of Louisiana has abandoned Armaliso Planting Company 1, first test of the company, at Napoleonville, Assumption Parish, Louisiana, in water sand at 6035 feet. Location of the well is 1800 feet west and 500 feet south of the northeast corner of the southeast quarter of Section 45-12s-13e.

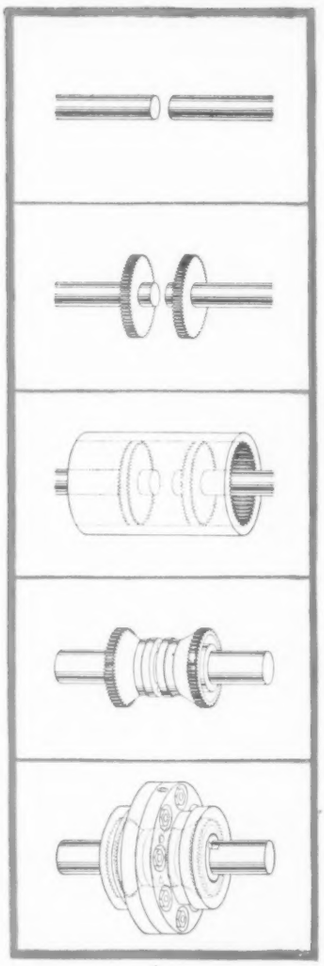
Napoleonville was one of the earlier salt dome discoveries made through use of seismograph. Aside from this test of Gulf Refining Company there have been two other wells drilled there, both by Union Sulphur Company. One was abandoned in gypsum at 675 feet, and the other in anhydrite at 1127 feet.

Wax Lake

Houston. — Pure Oil Company has abandoned the location which it made about two months ago for Wax Lake State 1 on the Wax Lake salt dome prospect in St. Mary Parish, Louisiana, and is now going forward with work on a substitute location, Wax Lake State 2, measurements of which have been given out as 3310 feet east and 1020 feet north of the southwest corner of Section 11-17s-9e. The abandoned location was 660 feet north and 1120 feet east of the southwest corner of Section 12-17s-9e. Wax Lake is a prospective salt dome discovered in 1929 by seismograph, and there has not yet been any drilling there.

Houston.—Gulf Production Company has completed E. Thomas 13 at Fannett, Jefferson County, for 1500 barrels initial production, 31 gravity oil, 10 per cent b.s. and water, following setting of one joint of screen at total depth of 3911 feet. This is a relatively shallow well for the Fannett field. Former production there ranged from 4250 to 5650 feet.

See how



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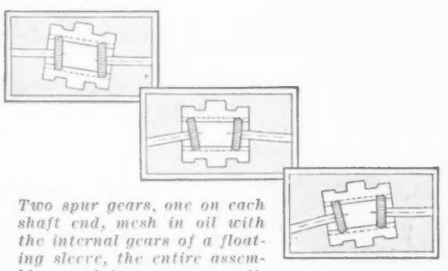

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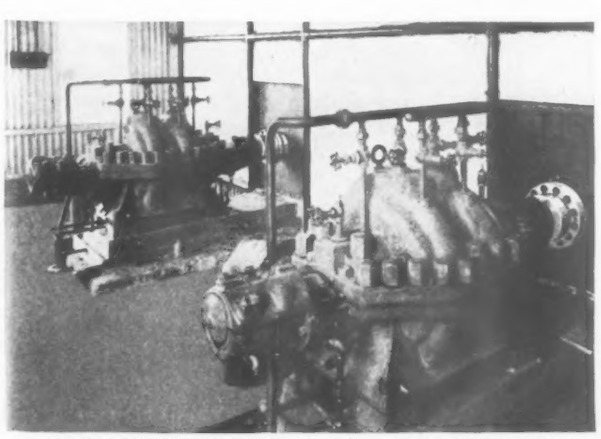

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Darst Creek Output Continues Above Prorated Allowance

SEGUIN, Texas. — Three crevice wells were completed or were in process of completion early this week in the vicinity of the Darst field, but outside the area restricted by proration rules. The surprise strike came from Magnolia Petroleum Company's M. E. Roamel 1, located in the northeast corner of an 80-acre lease in the W. Robinson Survey and northwest of the main field. This test developed oil in hole after losing rotary returns in crevice, with a total depth of 2317 feet, and halted operations to cement a string of 6⅝-inch casing at 2260 feet for a swabbing gauge. The oil bearing formation was encountered higher than normal for the field, and such is also true of the crevice wells being scored to the northeast of the field proper.

Cranfill-Reynolds Company's R. C. Appling 2, located 50 feet from southeast corner of the 117-acre lease, James Hodges Survey and an offset to a crevice producer, lost rotary returns after encountering crevice at 2250 feet and then filled 1500 feet with 36 gravity oil. Swabbing test made March 21 indicated a good producer in the making, and a report from the field March 25 showed the well as a 400-barrel producer. This company's first test on the lease missed the crack, and was abandoned at 2813 feet after being shot. Magnolia Petroleum Company's Appling 1, which is an offset to the above well, first encounteded the crevice in October at 2532 feet, and a second strike was made on the S. M. Roamel lease to the southwest. Appling 1 has been pumping and flowing about 1200 barrels daily, and Roamel 3 is averaging 1150 barrels daily natural flow.

Simms Oil Company and H. C. Cate's J. L. Manford 3, located on a crevice to the northeast of the Appling area, flowed and swabbed 400 barrels March 20 from chalk formation at 2517 fe[et] then went dead. Further swabbing r[e]vived the flow and the well produc[ed] 680 barrels oil, with three per ce[nt] water, during the 17-hour period end[ing] 7 a. m., March 21. A string o[f] tapered tubing is to be run to aid th[e] natural flow, while in the meantime th[e] well has been pinched. The same in[-]terests' Manford 1, which developed the first production last August has been equipped with tapered tubing, and gauged 450 barrels during the 24-hour period ending 7 a. m. March 21, with a total recovery of about 140,000 barrels oil to its credit.

Actual production in the Darst Creek field averaged 14,188 barrels daily during February from 72 flowing and pumping wells, while allowance under proration rules during the same period was an average of 11,490 barrels daily. This excess production of 2598 barrels daily is due to special concessions given for production from the crevice wells, which can not be throttled and produced by natural flow, while the two leases of L. C. Turman, Fort Worth operator, are produced at maximum capacity. The latter did not join the proration plan, and offset wells owners are allowed to produce their wells in proportion. Darst field maintained a daily recovery of 197 barrels per well during February.

Salt Flat Averages 80 Barrels Per Well

The same period, the Salt Flat field, which is located across the line in Caldwell County along the same trend of faulting, produced 25,503 barrels daily average from 319 flowing and pumping wells, or an average of 80 barrels per well daily. Total crude recovery of the Salt Flat field is estimated at 15,404,350 barrels up to the close of February. Salt Flat field averaged 26,110 barrels daily from 318 wells during January, and 29,483 barrels daily from 316 wells during December, thereby indicating a steadier output since the passing of the flush period.

There were nearly a dozen completions at Darst Creek during the past week, including the crevice wells mentioned above. Empire Gas & Fuel Company's Chris Knoblock 1 came in flowing at the rate of 5400 barrels daily from 2590 feet, and that company's H. Willie 1 was completed a 400-barrel producer at 2639 feet.

Humble Oil & Refining Company's D. D. Baker 1 gauged 1300 barrels at 2602 feet, and Denman 11-A was an 800-barrel producer at 2622 feet.

The Texas Company led all producers in number of completions for the week with a total of five. Its Knoblock 3-A gauged 2580 barrels at 2514 feet; Knoblock 4-A, 1080 barrels at 2544 feet; W. R. Posey 3 was also a 1080 barrel producer at 2619 feet; Henry Willie 5 gauged 228 barrels at 2621 feet; and Dallas Wilson 6 gauged 1350 barrels at 2609 feet.

Texas Affiliated Pipe Line Committees Confer

Houston. — Committees representing three large affiliated pipe line companies, the Texas Pipe Line Company, Texas Pipe Line Company of Oklahoma, and the Texas-Empire Pipe Line Company, met in Houston March 17 to March 21, inclusive, in regular sessions that are held annually for general discussion of operating problems. The committees include executives, superintendents, accountants, engineers, district foremen and others.

The accompanying photograph of the group was taken in the directors' room of The Texas Company building, where the sessions were held. Those in the picture are as follows:

Standing, left to right: W. L. Walker, G. E. Cunningham, C. W. Bewley, G. W. Fox, O. R. Burden, H. S. Crowley, H. T. Robinson, A. S. Bailey, E. E. Weller, H. J. Schmidt, J. B. Haden, Oscar Wolf, I. R. Cleveland, B. C. Walker, A. D. Riley, O. E. Stimson, J. K. McGoldrick, C. J. Goodwin, J. T. Rynd.

Seated, left to right: R. B. McLaughlin, J. W. Emison, T. J. McMahon, W. E. Hunter, E. H. Davidson, J. J. Burke, B. R. Davis, B. Fitzpatrick, E. L. Newman, J. C. Colligan, J. H. Borchers, R. J. Daniel, J. B. Alleman, C. O. Crouch, T. J. Hannon, H. J. Basham, B. E. Hull, H. L. Stewart.

Louisiana--Arkansas Field Notes

DeSoto Parish Producer May Mark New Oil Field

SHREVEPORT.—R. O. Roy, Shreveport oil operator, apparently has opened a new producing oil field in North Louisiana, with his Farmer E-1, NE NW Section 5-13-13, De Soto Parish, which was opened for three hours and a half Wednesday, March 19, and flowed 336 barrels of 39.7 gravity oil from the Woodbine sand at total depth of 2880 feet, through a one-inch choke. After flowing for this period the well was closed in to await the laying of a four-inch gathering line by the Standard Oil Company of Louisiana. This line, which was completed Saturday, March 22, is two miles in length and connects with a trunk line from Oklahoma to Baton Rouge, Louisiana. Two 500-barrel tanks are at the well.

The well flowed 2102 barrels through a ¾-inch choke when opened for 24 hours. The well made 110 barrels the first hour, 92 barrels the second hour, and 88 barrels the third hour, the temperature being 120 degrees. The new producer is approximately 10 miles from nearest oil production. Two offset locations have been made, one by Roy, in Section 33-14-13, to be known as Lee 1, and a second by Arkansas Fuel Oil Company in Scott 1, Section 34-14-13. Roy already had up a derrick for Farmer B-1 in Section 8-13-13, and has completed derrick for Lee 1.

Several major companies are reliably reported seeking to purchase the well and the block of several hundred acres held by Roy.

Cartersville and Zwolle, however, continue to hold the major activity in this territory. Two wells were officially completed in Cartersville during the week and three were completed in Zwolle.

Arkansas Fuel Oil Company extended Cartersville production a quarter of a mile northeast with the completion of Bolinger 1, Section 38-23-11, in the old O'Garte Spanish Grant, when Bolinger 1 was completed at 3174 feet with seven feet of sand gauging 150 barrels of oil daily, the production flowing through two and a half-inch tubing. Cartersville production was also extended a quarter of a mile west during the week when Palmer Corporation put Robinson 1, Section 26-23-12 on the beam at a depth of 3175 feet with 16 feet of sandy shale. The well is pumping 30 barrels daily. While no official gauge has yet been made, H. L. Hunt's J. W. Peyton 4, Section 25-23-12 is flowing at an estimated rate of 300 barrels daily from a depth of 3160 feet with 12 feet of broken sand, six and five-eighths-inch casing having been set at 3148 feet. The Texas Company also obtained a flowing well in Wilkinson 3, Section 31-23-11, which is flowing at an estimated rate of 600 barrels daily at 3141 feet, six-inch casing having been set at 3114 feet. It is 12 feet to broken sand. The Texas Company's Wilkinson 4 in the same section flowed 500 barrels in 18 hours at 3162 feet.

Two New Tests for Cartersville

Only two new locations were announced for Cartersville during the week, both being offsets to Bolinger 1 by the Arkansas Fuel Oil Company. Derricks are up for both tests, Bolinger 3 and 4, in Section 38-23-11.

Five miles east of Cartersville production and a half mile north of production in the Sarepta part of that district, Pat Hudson's B. L. Slack 1, Section 36-23-11, came in during the week bailed a little oil and considerable salt water at 2741 feet, this being the producing horizon of the Sarepta area. Six-inch casing had been set at 2680 feet. The well has four feet of sand.

Two wells offsetting Lion Oil Refining Company's and Lide and associates' Sabine Lumber Company 1, Section 31-8-12, a three-mile western extension of the Zwolle east field in the direction of the older producing area, were officially completed during the week. W. G. Gray's Bolin 1, in that section, a northwest offset is flowing 250 barrels daily from total depth of 2405 feet in the chalk rock. V. M. Miller's Colquitt 1, in the same section, a 660-foot eastern offset to Sabine Lumber Company 1, which came in at total depth of 2194 feet in marl, flowing at the rate of 1000 barrels daily and then went "dead," has been revived and is flowing and swabbing 500 barrels daily, according to official gauge. In NE NE Section 33-8-12, Amerada Petroleum Corporation's Bowman-Hicks 1 is pumping 25 barrels from chalk rock at total depth of 2456 feet.

Eight new locations were announced for the Zwolle area, six being in the east field, and two in the older Zwolle (Blue Lake) area, where there are now five producing wells with a daily yield of nearly 800 barrels. Benedum & Trees, which as far as their Zwolle operations are concerned, will hereafter be known as the Loring Oil Company, have derrick up for Peavy-Wilson Lumber Company 1, Section 21-6-13, six miles south of the older Zwolle area. Ruston Drilling Company has derrick up for Bowman-Hicks B-1, in the northern part of Section 24-7-14, half a mile from production.

Five new tests for the Zwolle east field are in Sections 31, 32 and 33-8-12. Bahan & Ryan made location for Meshell 1, Section 32-8-12. J. R. Crawford has derrick pattern for Pearce 1, Section 31-8-12. Loring Oil Company has derrick up for Bowman-Hicks 8, Section 32-8-12. Olsan Brothers, in the same section, have derrick up for Ferguson 1. Philp Brothers have derrick up for Dow 1, in Section 31-8-12.

Between the Cartersville and Sarepta districts, Merritt & Merritt tested 17 fourbles of oil and a show of salt water in Boucher 1, Section 17-23-11, in a drill stem test at 2705 to 2708 feet. Arrangements are being made to set casing.

Only one new location was announced in the new Urbana district of Union County, Arkansas, appears to have picked up the producing horizon from which Marine Oil Company's Thompson A-3, Section 10-18-13, the deepest producer in Arkansas, struck at a total depth of 3538 feet. This producer is now pumping 840 barrels of fluid daily, the salt water production in the yield averaging 49 per cent of the daily yield for last week.

Simms Oil Company's M. H. Simmons 1, in the same section, tested 11 joints of oil in 10 minutes in a drill stem test from 3524 to 3528 feet, March 22. There was no salt water, although the sand was reported as slightly salty.

Johnson-Gummer's Cargile 1, Section 4-10-13, is coring red beds at 3626 feet, apparently having missed the pay. Lion Oil Refining Company's Ballard 1, Section 10-18-13, is also below the pay horizon, apparently having tested seven fourbles of salt water with a slight show of gas from 3600 to 3608 feet, and is now reaming to bottom at 3621 feet. There are reports that this test may be taken to 5000 feet if pay is not found higher. Marine Oil Company's second test, P. Winn Estate B-2, in Section 10-18-13, is drilling in red beds at 3172 feet.

Only one ne wlocation was announced in Arkansas during the week, this being Modisette Drilling Company's Union Saw-

mill Company 3, SW NE Section 14-18-14, Union County, Hillsboro district.

Two small wells were added in that district during the week. Sonnell Felsenthal put Fee 1, Section 2-18-15 on the beam at 2191 feet and the well is pumping 15 barrels, two per cent salt water. Modisette Drilling Company's Federal Petroleum Company 1, Section 14-18-14, is pumping 40 barrels daily, eight per cent salt water, at 2256 feet.

In a mile southwestern extension of the Stephens district of Ouachita County, Arkansas, Magnolia Petroleum Company has at last standardized Grayson 1, Section 21-15-19, at a total depth of 1478 feet. The well is pumping 75 barrels of oil daily and 225 barrels of salt water. A. P. Smith and associates abandoned Reynolds 1, Section 21-14-17, a Ouachita County wildcat, as a salt water hole at a total depth of 1777 feet.

Efforts to revive Benedum & Trees' Bowman-Hicks A-1, Section 34-8-12, Sabine Parish, Louisiana, the original 12-mile extension well of the Zwolle east field, are under way. A rig has been installed and 58 feet of water was bailed from the hole in seven trips, after which the oil rose within 700 feet of the top of the hole, whose total depth is 2413 feet. The water was not salty, although said to have tasted slightly brackish. An analysis of the water is being made.

Zwolle Extension Well Resumes Flowing

Shreveport.—After being "dead" since March 16, Benedum & Trees' Bowman-Hicks A-1, NE SW Section 34-8-12, the original 12-mile extension well of the Zwolle, Sabine Parish, east field, was revived Monday night, March 24, and is flowing 150 barrels an hour through four and a half-inch casing set with and by the use of packer vacuum suction.

A half mile to the east of this well the same company completed Bowman-Hicks 3, NE SE Section 34-8-12, flowing 50 barrels an hour from chalk rock at 2357 feet, six and five-eighths-inch casing having been set at 2339 feet. The well offsets Ohio Oil Company's Bowman-Hicks 1, a 45-barrel pumper in NW SW Section 35-8-12.

Gauge of the 16 producers, Tuesday, March 25, in the Cartersville field of Bossier Parish, showed a total yield of 455,539 barrels.

Vancouver Gas Line Plan

Casper, Wyo.—A pipe line to utilize the surplus gas of the Turner Valley field, Ontario, Canada, by connecting it with Vancouver, to cost approximately $18,000,000, is being projected by American capitalists. Should financial and other support be promised by Canadian interests, the line will be built, and an extension later will be built southward to serve Tacoma and Seattle.

Oil Tariff Finally Defeated by Close Vote in Senate

Washington. — Failing in a sixth attempt to secure insertion in the tariff bill of a duty on imported oil, friends of the independent oil producers in the senate were successful in bringing about the adoption, shortly before consideration of amendments was concluded, of a provision calling upon the United States tariff commission to determine costs of imported oil from Venezuela to refineries on the Atlantic seaboard and also the cost to such refineries of domestic crude from the major fields, and to furnish such information to the president and to the house of representatives. The inquiry is to be completed within eight months after the enactment of the tariff bill.

WASHINGTON, D. C. — All hope for a tariff on oil was dissipated March 21, when the senate, by a vote of 38 to 37, rejected an amendment to the tariff bill submitted by Senator Pine of Oklahoma providing for a duty of 40 cents per barrel on crude petroleum and 20 per cent ad valorem on refined products, the revenues from which were to be used for highway construction, the crude oil duty applying only when the posted price of oil was $1.50 per barrel or less and the duty on refined products to be effective only when the price of standard unmixed gasoline was 20 cents or less per gallon in New York City.

This was the fifth time the senate had voted upon the question of an oil duty, and was a reconsideration of votes taken March 19, when the senate refused, 38 to 29, to accept the proposal of Senator Thomas of Oklahoma for a rate of $1 per barrel on crude and 50 per cent ad valorem on refined products, and, 32 to 28, an amendment offered by Senator Pine, providing a crude duty of 50 cents and refined products rate of 25 per cent.

Lobby and sugar played a prominent part in the defeat of the oil tariff on March 19, an attack by Senator Thomas on alleged raiding on private offices by the lobby committee evoking charges of vote trading by committee members. Denial that there had been any "raid" was made by Senator Walsh of Montana, and three of the four senators from Colorado and Oklahoma who were accused of trading on the sugar and oil duties also entered denials.

The debate, which lasted for seven hours, was at times exceedingly bitter and, except for infrequent references to the need of tariff protection, there was little discussion of the situation in the oil industry.

The debate was frequently punctuated by attacks on and defenses of Wirt Franklin, who headed the group of independent oil producers who some time ago came to Washington to work for the oil duty. The senate several times went over the disclosures made by Mr. Franklin before the lobby committee, in the course of which Senator Thomas attacked Senator Blaine of Wisconsin for using correspondence which had not been offered before the Caraway committee. In the course of the debate it was brought out that while Mr. Franklin was in Washington representing the independent oil producers the Dutch Shell interests were in the hands of Colonel John H. Carroll, declared to receive a salary of $25,000 a year.

Prior to a vote on his proposal, Senator Thomas accepted an amendment offered by Senator Pittman of Nevada providing that the duty on crude oil should not apply when the average posted market price was in excess of $2 per barrel and the duty on refined products should not apply when the price of standard unmixed gasoline in New York City was in excess of 20 cents per gallon.

When the roll call was taken on the Thomas proposal, party lines were entirely broken down, with eight democrats and 21 republicans supporting the duty and 18 republicans and 20 democrats were in opposition.

Following the defeat of efforts to secure an oil duty, it was indicated that an attempt would be made to secure a thorough investigation of the oil industry by a senate committee headed by Senator Walsh of Montana. Only by such an investigation, it was said by one of the oil men who followed the proceedings, could the full facts regarding the situation be brought before the American public. The independent oil men have consistently taken the attitude that the five largest oil companies, which are heavily interested in imported oil, have been fighting the duty as part of a more or less organized plan to eliminate the independents. Although there is some doubt whether a majority of the senate would vote in favor of such an investigation, it is possible that, despite the attitude on the oil duty, there is sufficient sentiment in favor of a thorough airing of the charges which have been made to enable such a resolution to be passed.

Denver.—Increased showings of gas are reported from the wildcat well being drilled by the White Eagle Oil & Refining Company in the Fordham 1-A in Rio Blanco County. At 3010-3028 feet the increase was very noticeable and the gas is much wetter than heretofore. As yet the bit has not touched the big sand in the Green River formation which shows saturation at the outcrops and the gas is now coming from a sandy shale formation.

News From Rocky Mountain Fields

Florence - Canyon City Area Exploration Planned

Denver.—Interesting exploration work is being done this spring in the Florence-Canon City district, the second oldest producing field in the United States, in Fremont County. Both to the north and to the south of the proven district of the field there are sand tests started. The field produces all of its oil from the shale, and wells previously drilled to the Dakota in the field have yielded water.

The pool is on a synclinal basin and the source of the shale oil has never been definitely established. A structural test on Chandler Dome, five miles south of Canon City and three miles south of the nearest producer in Hell's Half Acre, is drilling by P. W. Harr et al, of Denver. The uplift here brings the Dakota nearer the surface and in this test it was found at 340 feet. The drill passed out of the Lakota at 600 feet and is now in the top of the Morrison at 650 feet. Water was found in both the Dakota and the Lakota. The test will go to the Morrison and the Sundance, as well, perhaps, as the Pennsylvanian expected at 1900 to 2000 feet.

The well on the northern side of the field is being drilled by the Continental Oil Company on the Canon Heights Oil Company account. It will be drilled to 3000 feet at least.

Little Lost Soldier

Rawlins, Wyoming.—The deep test being drilled in the middle of the Little Lost Soldier field by the Prairie Oil & Gas Company is reported to be changing from rotary rig to cable tool with total depth 3380 feet. This is a test which will drill into the Tensleep within another 1300 feet, and which will contribute interesting information concerning the possibilities of this horizon in the Little Lost Soldier field.

Buckley Field Test Has Oil in the Hole

Great Falls, Montana.—Cosmos Petroleum Company finally succeeded in shutting off the Sunburst sand water and has drilled into the Vanalta horizon in its well in the new Buckley field, lying partly in Montana and partly in Alberta. From 2545 to 2550 feet the well has about 500 feet of oil standing in the hole, and work has been brought to a standstill while title difficulties are straightened out and a string of 5 3/16-inch casing is run. The oil is reported to be slightly lower in gravity and somewhat darker than other oil in the field, but there has been no test made of it.

Discovery of oil at this depth in the Cosmos well proves beyond further question that there are at least two "pays" in the field. The sand in which the other wells found oil was penetrated in the Cosmos test from 2489 to 2507 feet. It contained oil and would probably have been commercial had not water been allowed to stand on it for three weeks, and then mudded and cemented pipe part way into the sand.

Other wells in the new field are making nice progress, and interesting completions which will go far toward establishing boundaries of the producing area are expected within another fortnight.

Mahoney Dome

Rawlins, Wyoming.—There has been no sustained production test of the Tensleep sand discovery in the deep well being drilled jointly by the Midwest Refining Company and the Producers & Refiners Corporation in the Mahoney dome field. The well is standing at 4683 feet where production was being tested when floating sand cut out the cups. The hole had 4000 feet of oil standing when the test started; after a four-hour pumping the cups were cut out and it was necessary to pull the tubing. Well is estimated good for about 300 barrels. Oil is a mixed paraffin and asphalt base and tests 32.2 gravity with 27 per cent gasoline.

Red Lodge, Montana.—The Ohio Oil Company's second well on the Dry Creek structure, the first of which is good for 15,000,000 cubic feet of gas, has drilled through the first Frontier sand and at 4395 feet has developed 7,000,000 feet of gas. The second well is to be deepened, with the idea that it will doubtless increase its production materially.

Denver.—An interesting wildcat which is nearing the objective is the Platte Valley Petroleum Company's Patterson 1 in Weld County which at last report was drilling below 5025 feet in black shale. It is said to be logging closely with the wells on Wellington dome in Larimer County; Dakota sand is expected at 5200-5300 feet.

Gillette, Wyoming.—The new Lee Hilliard Refining Company plant has started operations. It has a charging capacity of 500 barrels per day, and is to be run on crude from the Osage field in Weston County, southeast of Gillette. There is a storage capacity of 1500 barrels for crude and 8000 gallons for refined. The local market for gasoline and tractor fuel is to be supplied by the new plant.

Faith, South Dakota.—Cosden & Company are prepared to resume operations at their wildcat well on the structure in Ziebach County, western South Dakota. This is a rotary test.

Plan for Deep Drilling On Midway Dome

Casper.—The long-awaited deep test of Midway Dome, about nine miles north of this city, is to be drilled by the Midwest Refining Company for the account of the Saltmount Oil Company (Salt Creek Producers Association and Mountain Producers Corporation) within a very short time, according to report considered reliable. The new company controls the three "highs" on the anticline running northwest, southeast, and east of Casper: Midway dome, North Geary Dome, and Geary Dome.

Continental Oil Company drilled a well on Geary dome to 4850 feet a few years ago, and Midwest Refining Company drilled one on Midway to 4810 feet. Texas Production Company's well on the last named stopped at 3800 feet. The first objective in the Saltmount test will be the second Wall Creek at 5200 feet. The Lakota will be tested next at 6200 feet if there is no commercial production found in the Wall Creek. The well is prepared to drill to 6800 feet if necessary.

Osage Deep Development To Be Active in Summer

Osage, Wyoming. — Activity in the Osage field continues to increase as spring weather permits operators to move equipment into the district. The deep test drilling by the Smith interests is below 1500 feet with production expected around 1750 feet; it is in the new west extension. Three new locations are made, two by the Updike interests and one by Mouser et al; material is being moved in for work to be started immediately.

This field will apparently come into its own during the coming summer. It is an old shallow district which was abandoned a few years ago by almost all of the major operators, including Ohio Oil Company and Midwest Refining Company which had controlled it previously. Within the last few months deeper sands have been proved to be very productive in a west and north extension, and the value of the district has increased proportionally.

Hot Springs, South Dakota.—An interesting test to be drilled on a wildcat structure in this state this spring is that to be started immediately by the Pacific-American Oil Company on the Country Club structure 2½ miles west of this city.

About 15 miles northwest of this city the Rapid City Drilling Syndicate, which has the contract for the Country Club well, will drill a test on the Robinson ranch which adjoins the Barker structure on which the first producing well in the state was completed last fall.

Oklahoma--Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Important Tests At Oklahoma City Near Completion

TULSA.—The Oklahoma City field is due for many completions within the next week or two, a good number of which will have important bearing on the future prospects of the pool. During the past week interest was centered in the increased number of new locations that were made, chances of production of the various wells now shut down waiting on cement to set, and completions that were made in the south end and within the older producing limits of the pool.

The new locations staked the past week carried the field right into the city limits. Most of the new work was started in this direction, which is north from the field. Several completions due shortly will tell more about the possibilities of this north extension.

Completions made in the south end further proved the sand producing horizon in that direction. T. B. Slick, Anderson & Prichard's Hoops 2, SW SW NE Section 31-11-2w, flowed 13,000 barrels from broken sand at 6425-6602 feet. The same company's Hoops 1, one location north, made 892 barrels in 24 hours while drilling at 6425 feet. Sinclair Oil & Gas Company's School Land 3, NW NE NE Section 36-11-3w, made 568 barrels the first hour and then settled to 450 barrels per hour from the Detrital horizon.

Of particular interest in the south end of the field was T. B. Slick's Hussman 1, SW NW SW Section 29-11-2w, which would extend production to the east in the south extension area. This test had the Arbuckle limestone at 6263-6454 feet and was showing gas after bailing down.

All of the completions made recently within the older portion of the field have been quite small, due mostly to the gas pressure having gone off to such a large extent. Indian Territory Illuminating Oil Company's 1, NW NE NE Section 13-11-3w, made but 956 barrels in 12 hours from the Arbuckle limestone at 6153-6453 feet, while the same company's No. 7, SE NW SE Section 24-11-3w, made 689 barrels in 12 hours from the Arbuckle lime at 6125-6472 feet.

Small Producer Extends Konawa Field

Tulsa.—The only satisfactory development at Konawa, southern Seminole County, during a week of general disappointment was the finding of a small southwest extension well. This area is fast being defined, but indications are that it will run as far south as the Hilton-Phillips well in Section 20-6-6, and to the new southwest extension well in the SEc Section 19-6-6. This will give the field a length of nearly two miles, with practically all the development having taken place thus far in the northern half mile. The area will evidently resemble an egg in shape, with a width of approximately three-quarters of a mile.

The new extension well is Anderson & Kerr's Morgan 1, SEc Section 19-6-6. The well had a total depth of 2982 feet, but was plugged back to 2790 feet. The well swabbed 15 barrels, but is to be shot. Hilton Phillips' Hyde 1, SE NE Section 20-6-6, the other south extension well, produced 825 barrels while on proration.

A number of wells in the vicinity were failures, including the following: Empire Oil & Refining Company's Louisiana 1, NW NE SE Section 16-6-6, drilling 3380 feet; Magnolia Petroleum Company's Wisey 1, Section 9-6-6, showing oil and hole full of water 3015-20 feet; Prairie Oil & Gas Company's Nora 1, Section 9-6-6, total depth 3197 feet, dry and abandoned; Mid-Continent Petroleum Corporation's Harjoche 2, SW SE Section 8-6-6, abandoned at 2950 feet, and Harjoche 3, Section 8-6-6, abandoned 3095 feet; Twin State Oil Company's Charlie 1, NE SE SW Section 8-6-6, abandoned 4023 feet.

Voshel East Side Marked by Gypsy Failure

Wichita, Kans.—The east side of the Voshel pool, McPherson County, Central Kansas, was defined the past week when Gypsy Oil Company's Stucky 1, SW SE NW Section 10-21-3w, found a hole full of water in the Wilcox sand from 3535-40 feet.

This practically defines the east and west sides of the field, with a producing width of a little less than a mile. Unless rich extensions are made to the north and south sides, of which the latter looks more promising, the field need never be expected to reach 30,000 barrels per day as predicted when it was first opened.

Production in the field is declining rapidly, as indicated by the drop in production during the past week. The combined output of 16 wells was 12,800 barrels in 24 hours and later the production was only 10,000 barrels per day, although the field is permitted 15,000 barrels output.

Schurr Pool Prorated

The oil production of the Schurr pool of Rice County, Western Kansas, was extended for 60 days after April 1, by an agreement of operators at a conference in Wichita. The four completed wells will be pinched to 50 barrels per day until June 1. The area in which no wells are to be started during April and May was extended another half mile in each direction, making the restricted area include all leases within a mile and a half of the wells.

Set Long String of Nine-Inch at Oklahoma City

Tulsa.—Mid-Kansas Oil & Gas Company has run 6380 feet of nine-inch A.P.I. Standard 45-pound pipe at its Mollman 2, NW SE SE Section 23-11-3w, southwest edge of Oklahoma City, Oklahoma. This is the longest string of nine-inch pipe to be run in that or any other Mid-Continent field.

The pipe was fabricated at the mills of the Youngstown Sheet & Tube Company. Total depth of the hole is 6409 feet.

This has upset the drilling practice in the Oklahoma City field. Heretofore all wells have run six-inch casing at from 6000 to 6300 feet, which the Mid-Kansas found unnecessary to do. The officials of the Mid-Kansas Oil & Gas Company say that the Mollman well may be carried to 7500 feet, if necessary, such a long string of nine-inch casing would easily permit it to do so. The well does not look promising for production.

St. Louis Pool

Tulsa.—The Wofford extension to the St. Louis pool, Greater Seminole district, Oklahoma, after several attempts to find production in the Simpson or Wilcox sands is still unsuccessful. Last week, Magnolia Petroleum Company's Wyatt 1, SE SW NE Section 4-7-4, found 2000 feet of salt water in the Viola lime at 4310-4315 feet, which formation is just above the Simpson sand.

East Earlsboro

Tulsa.—The farthest south well in the East Earlsboro field of Oklahoma is the Amerada Petroleum Corporation and Dixie Oil Company's Scott 3, NWc Section 30-9-6, which swabbed 420 barrels in 22 hours.

Commission Holds Hearing On Darst Creek Drilling

AUSTIN, TEXAS.—At a hearing held here March 17 the problem of combatting water encroachment in the Darst Creek field, Guadalupe County, was discussed and deliberated upon before R. D. Parker, chief supervisor of the oil and gas division of the state railroad commission.

The chief question before the meeting was the determination of the depth to which wells should be drilled into the Edwards limestone, the producing formation at Darst Creek, and following the meeting, the oil and gas division has taken the matter under advisement, and is seeking to formulate an admonitory ruling which can be adhered to without damaging any individual operator. Members of the body expect to place such a ruling before the railroad commissioners during the present week, and will reach a decision as soon as possible. This is the first ruling of this kind to be brought before the commission.

Attending the meeting on March 17 were representatives of The Texas Company, Magnolia Petroleum Company, and Humble Oil & Refining Company, which are among the principal operators at Darst Creek, W. P. Laughter, deputy supervisor for the oil and gas division in the territory in which the field is located, and Leslie McKay, deputy supervisor at Austin.

In the meeting it was brought out that the Edwards lime is highly porous; that water beneath that formation affords the hydrostatic pressure which moves the oil to the wells in the field; that in order to get maximum oil recovery from the wells it is necessary to drill into the lime several feet; and as the water is immediately below, there is the danger of drilling into the water, increasing the cost of lifting the oil, and jeopardizing properly completed wells on adjoining leases.

The data at hand showed that wells of the Gulf Production Company had been drilled to an average depth of 31 feet into the pay; the Humble Oil & Refining Company wells to an average of 32 feet into it; wells of The Texas Company to an average depth of 37 feet into the lime pay; and those of Magnolia Petroleum Company to an average depth of 39 feet into the pay. (The Magnolia wells varied from 25 feet to 55 feet into the pay.)

The Texas Company has been most successful in avoiding the water in its wells, it was shown, with most of that company's leases located on top of the structure as it has been defined. The Texas Company has operated on the theory that there is a definite water level, and that it is to be found at 2115 feet sub-sea.

The Humble Oil & Refining Company geologist present brought forward information to show that the Edwards is more porous in the lower section below the upper 10 feet of the formation. He pointed out that it appeared that in wells drilled much deeper than this into the sand the water came in and unless the well was choked, it was soon lost. From this he argued that the economical thing to do was to cease operation well above this water level, although he agreed that some water was necessary to wash the sands and make the most complete recovery possible. He also mentioned the fact that there are layers of chert which may shut off the oil or trap it. However, as these are generally small lenses, it is generally possible for the oil to circulate around these without letting the water through.

The general sentiment of the meeting was against setting a definite depth in the sand to which the wells should be drilled, as this would operate a hardship against some of the companies, it was pointed out, the formation not being geologically uniform, and it being necessary to vary the drilling operations to take care of particular conditions.

W. B. Trammell and George D. Sears were elected vice-presidents of Houston Natural Gas Company, Houston, at the annual meeting of the board of directors last week. Trammell has been general manager of the company for more than a year and has been connected with the company since organization in 1925 as a subsidiary of Houston Pipe Line Company. Sears is head of the legal department of the company.

Directors of the company are E. H. Buckner, president; W. Tucker Blaine, W. B. Trammell, T. M. Kennerly and D. P. Perkins.

Officers have been elected by the Gulf Cities Natural Gas Company, an affiliated company with the Houston Natural Gas Company, as follows: David Hannah, president; Frank C. Smith, vice-president; and A. H. Kennerly, secretary-treasurer.

W. B. TRAMMEL

GEORGE D. SEARS

The University of Oklahoma has announced a summer field course in the petroleum industry through its school of petroleum engineering, from June 4 to August 1, 1930.

The course will consist of a study of operating methods in the Greater Seminole area and in the new Oklahoma City field, and will be directly under the supervision of departmental instructors. It will include a study of drilling methods, oil well completion and methods of production, natural gasoline plants, and methods of treating and refining crude petroleum, and methods of transportation for natural gas and crude oil. Prerequisites for taking the course are at least 75 college or university semester hours, including eight hours of chemistry, 10 hours of physics and 10 hours of geology. The fee for the course is $50, and a total of 100 registrants will be accepted.

Deep Test Planned on Big Mexican Leasehold

Eagle Pass, Texas.—Having completed a geological survey on a portion of the 3,000,000-acre leasehold held in Northeastern Mexico, the Coahuilla Oil & Gas Company of Mexico, has announced that a deep test will be started within 90 days on the Lajous ranch, located about 15 miles northwest of Eagle Pass, Texas. This company is affiliated with the Lloyd Oil Corporation, Fort Worth, Texas, with Dr. A. D. Lloyd, president, and Ray Hoff, superintendent of drilling and production. A company owned cable tool outfit will be shipped to the wildcat location. The block of leases flank the Texas border between Del Rio and Laredo, being a distance of about 150 miles, and a series of shallow tests for sub-surface data have been drilled on the north end. William B. H. Magruder of Piedras Negras, Mexico, is in charge of the field operations.

Chambers County

Houston. — Pure Oil Company has made location for Kirby Petroleum Company 1, which will be the first test drilled on the Cove prospect, located in the northwest corner of Chambers County between Barbers Hill and Lost Lake fields. The location that has been made is on a 221-acre tract in the Charles Tilton Survey. Indications of a prospective oil field were found there by seismograph.

Harris County

Houston. — Sloan Prospecting Company is now drilling around 2000 feet in its wildcat test, J. Ulrich 1, located on the Cedar Bayou prospect, Harris County. The well is about five miles northwest of Barbers Hill, in the west central portion of the Hannah Nash Survey. This is the first test to be drilled in the area following geophysical work which indicated possibilities of a condition necessary for accumulation of oil.

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Injunction to Stop Gas Waste Significant Development

LOS ANGELES. — The granting of a preliminary injunction to stop gas waste at Santa Fe Springs is regarded as one of the most significant developments in the history of California's oil industry and undoubtedly will exert a considerable influence upon the future development of large fields. The restraining order may prove to be almost revolutionary in effect and promises to be the direct weapon with which over-production of oil may be stopped.

The temporary restraining order was issued in the Superior Court at Los Angeles, March 19, by Judge William Hazlett, following a hearing which lasted several weeks and during which a few independent operators exhausted every means at their command in an effort to prevent a favorable decision for the state. It became effective March 21 and is expected to reduce production at Santa Fe Springs from above 150,000 barrels to around 100,000 barrels within a few weeks.

The temporary injunction is the first taste of victory for the State of California, the suit having been filed against all operators in the field as a test of the gas conservation law passed nearly a year ago by the legislature. The case was started in September but a continuance granted until October. After attorneys for certain defendants who were opposed to the law argued over the necessity of bringing in other parties as defendants, a writ of prohibition was obtained from the District Court of Appeals, ordering the Superior Court to stop the trial until the higher court could decide on whether lessors and others should be brought in as necessary parties to the suit. The State Supreme Court, in turn, took the case from the jurisdiction of the District Court of Appeals, later deciding that lessors were not necessary parties and ordering the case back to the Superior Court for trial.

The preliminary injunction granted by Judge Hazlett is sweeping in its provisions and strikes at the very heart of the gas waste. Excerpts follow:

"It is ordered and decreed that the above mentioned defendants and each and any of them and their respective attorneys, agents, servants and employees and all persons acting in aid of them, or any of them, be and they hereby are restrained and enjoined and each of them is hereby restrained and enjoined from and after 12 o'clock noon of the 21st day of March, 1930, until the further order of this court as follows:

"1. From blowing, releasing or permitting any natural gas to escape into the air from any well or wells in the Santa Fe Springs oil field before the removal of the gasoline from such natural gas.

"2. From operating any well producing natural gas in the Santa Fe Springs oil field except while exercising a high degree of care in the selection and adjustment of appliances and in the use thereof for the purpose of keeping each producing well in its 'optimum gas-oil ratio' — the term 'optimum gas - oil ratio' being defined as the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time.

"3. From producing more net formation gas on the average day of each seven (7) day period from any lease or other property unit than is set forth in the 'Allowed Gas Production' column in the schedule following:"

Each lease in the field is listed in the restraining order, with the estimated potential oil production and the allowed gas production shown, as agreed upon by the court. Field potential is placed at 237,576 barrels, while the "allowed gas production" is set at 295,898,000 cubic feet per day. The latter figure was based upon the demands and the available gas outlets of the field.

The injunction orders each operator prepare two copies of a report signed by the production manager, one to be filed with the clerk of the court and another to be filed with the state oil and gas supervisor at Los Angeles, the report to show the day of production, name of lease, identification of each well, quantity of oil and gas produced from each well, persons to whom the gas is delivered, quantity disposed of from each lease for repressuring, for plant fuel, for field use, to companies for resale, for transport out of the field, and the quantity blown to the air. The report is to be made within 48 hours after the expiration of the day to which the report refers. Each operator must file a summary of each seven-day period, showing a form of recapitulation for the time involved.

Taft, California. — Standard Oil Company has reached 9400 feet in Mascot 1, Section 26-32-23, a test in the Midway district. This world's record well is now nearly 50 feet deeper than its nearest rival, Oscar Howard's Hathaway 7, which is standing idle in the Santa Fe Springs field.

Must Install Measuring Device

The state oil and gas supervisor is authorized to require each operator to install such measuring devices as may be necessary. Formation gas must be reported where well is on gas lift.

There is nothing in the injunction which prohibits any operator from completing any well now being drilled. Gas may be blown into the air while a well is being completed and for five days after completion, as long as the operator proceeds with diligence.

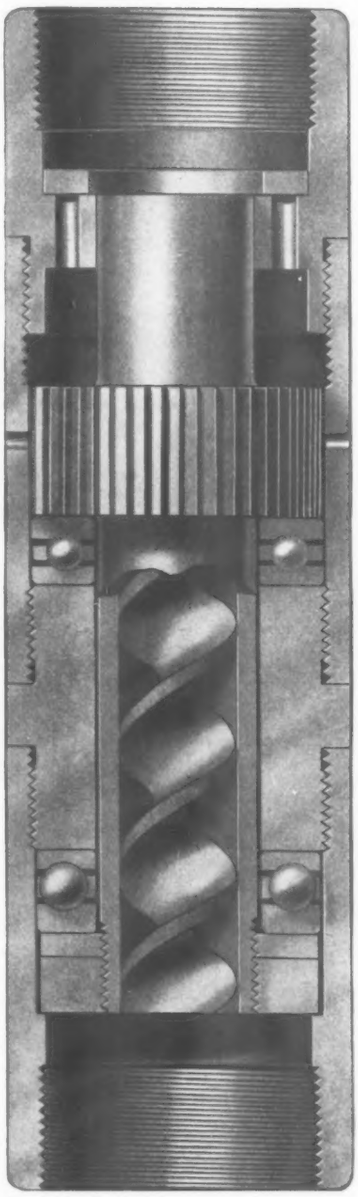
Any defendent may, on five days notice to counsel for parties who appeared in the action, move to vacate or modify the injunction. Cause may be shown on April 14, without further notice, why the preliminary injunction should not be modified, vacated, discharged or a new injunction made.

R. D. Bush, state oil and gas supervisor, has announced that operators may use the present triplicate form recently inaugurated by the umpire in making their reports on production, this step being made to avoid confusion which might accompany two reports. Under this arrangement, the umpire will get a copy of the daily and weekly reports.

The injunction is expected to bring to an end the most flagrant waste of natural gas witnessed in California for years. The Santa Fe Springs field was responsible for a daily waste of from 400,000,000 to 1,000,000,000 cubic feet of natural gas for more than a year. Present waste is above 300,000,000 cubic feet. Elimination of the surplus blown to the air will necessitate the pinching and shutting in of a large number of wells. In many cases it will be necessary to shut in wells to meet requirements of the injunction.

The restraining order will work a hardship on a few small operators who will be forced to reduce production to a still lower figure. Larger companies will be forced to shut in many wells,

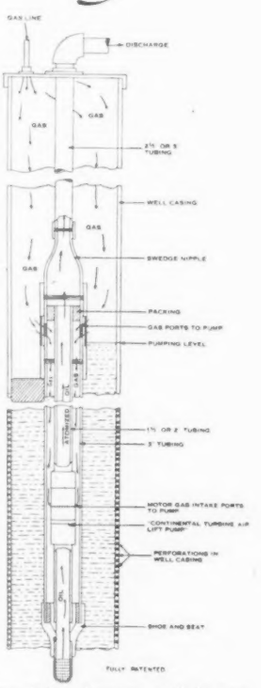
The *Advanced* principle of lifting Oil *economically*



Regarded as one of the most revolutionary improvements in oil well pumps since the inception of the Petroleum Industry, the Continental Pump offers a simple and highly efficient method of lifting crude. This improved pump utilizes the atomizing method whereby the oil is elevated from its fluid level through tubing by a combination of mechanical atomization and hydrostatic load relief.

New Operating Principle

The Continental Pump involves the application of a minimum pressure of either air or gas after the kick-off into an enclosed area within the bottom of tubing and its introduction into the pumping element through angled port holes. This pressure is trajected through port holes and exerts its force upon a motor which operates not unlike a steam turbine. The motor within the pump is equipped with a continuous series of vanes. An impeller rotates with the motor, picking up the oil. The air or gas, leaving the motor, strikes the oil column at the top of the pump and effects complete atomization. The gas or air cannot slip. The oil rides along with the gas by reason of atomization and is brought to the surface where the gas or air separates, leaving solid liquid.



Descriptive literature will be sent upon request. Distribution arrangements for Mid-Continent and all other fields are now being completed.

Construction of the Pump is simple indeed. The entire assembly weighs no more than 15 lbs. in the 2½" size. No special fittings, no plungers, no sucker rods—nothing to cause rapid wear or trouble.

CONTINENTAL EQUIPMENT CO.

Subway Terminal Building Los Angeles, California

Continental Pump

Pressure Lift ~ Atomizing Turbine

but they are better fortified to stand the sacrifice than the smaller operator.

So far as can be learned, no company will refuse to comply with provisions of the injunction. Independent companies which fought the restraining order have not all announced their intentions, but all but one have unofficially hinted that they would comply with the law.

Meanwhile, the curtailment program has brought production down from 700,000 barrels to 640,000 barrels within three weeks and a still lower figure is in sight, disregarding the injunction against Santa Fe Springs operators. State potential has been placed at 1,085,527 barrels, with an allowable of 605,218 barrels.

The state's suit against all operators on the North Dome at Kettleman Hills will be heard in the Superior Court at Hanford, April 1, while the one directed against Long Beach operators will be called April 7. It may require some time to hear the evidence in these cases, but it is believed that restraining orders similar to that issued against Santa Fe Springs operators will be granted.

Elwood

Santa Barbara, California. — Recent completion of Pacific Western Oil Company's Goleta 92-2 as a 6500-barrel producer has caused a shifting in the plans of at least two companies operating in the Elwood field. Although these plans will not be carried out for several months, and possibly a year, increased activity on tideland permits is anticipated not later than the early part of 1931. Goleta 92-2 is located on a long pier which extends out in the Pacific Ocean and recent soundings indicate that the water is no deeper at the end of the permit than at the present location. This will enable the company to drill much farther out in the ocean. The success of the well also makes additional locations on offsetting permits look very attractive.

Kettleman Hills

Coalinga, California. — Superior Oil Company has established a new record, by successfully cementing a string of 13⅜-inch casing at 5895 feet in Tuffman 1, located on the northwest flank of the North Dome at Kettleman Hills. Associated Oil Company formerly held the record in this field having landed 13⅜-inch casing at 5578 feet in Whepley 1. Superior Oil Company's Huffman 1 is located nearly four miles northwest of the discovery well and cores taken below 5000 feet indicate that the structure will extend farther in this direction than the more conservative estimates revealed.

Bolsa Chica Oil Corporation has cored more than 150 feet of oil sand and shale in Ferguson 1 and expects to make application for a permanent lease when the government issues a certificate of compliance in recognition of the discovery of the Temblor sand. Under provisions of the original agreement, wells on the North Dome are to be drilled into this formation and shut in until July 1, 1931. There is some doubt concerning the discovery in this well, an early claim having been made that the Temblor sand was found a few hundred feet shallower.

The South Dome is at least temporarily out of the running and the chance for production in this part of the field is considered rather slim. Abandonment of Ohio Oil Company's Smith 1 does not eliminate the South Dome as a possible producer, but it leaves a strong element of doubt. There is still a belief that a connection between the Lost Hills fields and the South Dome exists, but if such a theory proves correct the "high" of the latter will be southeast of Smith 1.

San Joaquin Valley

Fresno, California.—Rio Grande Oil Company will immediately start a well on Section 35-13-16, a short distance north of Herman and offsetting Associated Oil Company's Herminghaus 1, abandoned several years ago after a few oil showings were encountered. The new location is on a vast plain in the upper San Joaquin Valley and probably will be the first of several to be drilled as a test of many large blocks held by both major and independent companies.

Venice

Los Angeles. — Development of the townlot section of the Venice field will not be as rapid as that of several other fields in the Los Angeles basin, due to restrictions imposed by the City of Los Angeles. Although no permits have been issued, the corporation commissioner has taken a hand and is expected to add to the restrictions tentatively agreed upon by local authorities. Promoters and operators who serve notice to drill will have to demonstrate their ability to fulfill all requirements before final permission will be granted. This will include a drainage of at least one acre per well; contract for the disposal of oil; a capitalization not exceeding $175,000 per well; drilling permit from the City of Los Angeles, and adequate impounding requirements.

Meanwhile, several new locations have been made on leases outside the restricted district and the field is gradually becoming more active. The Ohio Oil Company has made a location on its Brown lease, already having two active drilling wells, one ready to spud in and another rigging up. Union Oil Company is ready to spud in No .1 but probably will not make another location before the approximate position of the first test with reference to the top of the structure is determined. Barnsdall Oil Company has definitely located Burke 1 but will not start operations at this time. Featherstone and Preston have completed a rig for their first test in the field, while Burlingham Petroleum Corporation has made a location south of the discovery well. Hurst and Eaton are driving piles for a derrick and expect to start drilling within 30 days.

Santa Fe Springs Wells Have Small Initial

Los Angeles.—The Clarke zone continued to give a poor account of itself during the past week and Santa Fe Springs showed further signs of declining to a much lower figure. Ten wells were completed in the sand, with an average initial production of 350 barrels, but the high percentage of water in several of these new producers technically placed an even lower average on the group. Inside and outside wells alike reflected the natural decline, some of those finished being located near large completions of a few months ago. Not one of the 10 new wells produced as much as 1000 barrels, while two fell below 100 barrels.

Bandini Petroleum Company's Off 11, completed at 6335 feet in the O'Connell zone was the best well of the week, flowing more than 1500 barrels from 37 feet of oil sand and shale. General Petroleum Corporation obtained a production of 500 barrels from No. 239, a Buckbee zone well completed at 6200 feet.

The number of drilling wells has dropped to 85, the lowest number since a few days after the Buckbee zone was discovered 20 months ago.

California Stocks

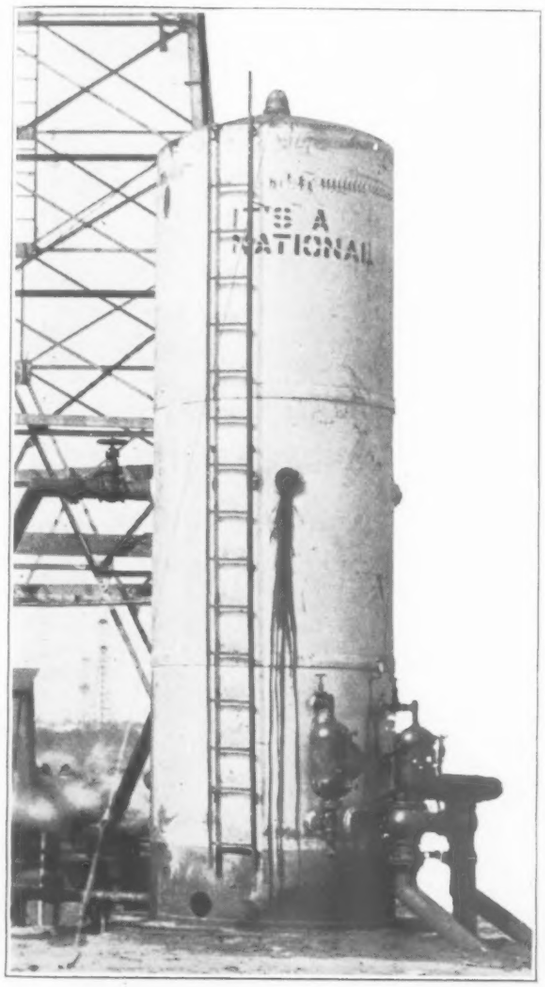
Los Angeles.—Total stocks of crude and all products in California territory increased 3,352,220 barrels during the month. Total stocks on March 1 were 189,698,220 barrels, a new peak for all time. Light oil stocks increased 2,273,041 barrels, heavy oil stocks 614,716 barrels and gasoline stocks jumped 956,593 barrels.

Long Beach

Long Beach, California.—Occasional shallow completions in the Long Beach field are sharing attention with the deeper producers on the southeast flank, both showing more promise than the ordinary deep zone completions on top of the structure. A. H. McFarland Syndicate has completed No. 2 with an initial production of 1400 barrels at a depth of only 4250 feet. This well is located on the west side of the field and adds weight to the theory that best production in the future will be obtained either in the shallow zones or on leases which have not been intensely drilled in the deep sands. Several deep wells have been completed on the pump and it is doubtful whether they will pay for themselves, even over a long period of years.

Casper.—The deep test to the granite being drilled by the Midwest Refining Company in the Salt Creek field, is now about 200 feet into the Tensleep sand and is producing more than 1800 barrels per day, of which about one per cent is water. The Tensleep is about 400 feet deep in the field, and was topped at 3780 feet with the oil production starting at 3790 feet.

Can you equal this performance of NATIONAL SEPARATORS *with any other equipment?*



Farley-Fuzzell No. 1
Oklahoma City Field

An interesting test was recently made at the Farley-Fuzzell No. 1 Well, Oklahoma City Field, in an effort to determine performance efficiency.

One No. 1 A. National Separator handled to clean separation the Farley-Fuzzell No. 1 Well making:

102,364,000 cu. ft. gas per 24 hours; 31,250 bbls. oil per 24 hours; 95 pounds pressure on the separator; 510 pounds back-pressure on the well. Two 8¼ Gas outlet lines with one 8¼ National Back-Pressure Gas Valve in each line (wide open). One 6" Oil Line to tanks and one combination 6" and 5 3/16 Oil Line to tanks.

Part of this production was later turned into another separator. A charcoal test was made of the gas from the No. 1 A National Separator when volume was 76,372,000 cu. ft. gas with 80 lbs. on the separator, and 916 bbls. of Oil per hour was going through the Separator.

Gasoline content was .317 gallons per thousand cubic feet of gas at the riser.

Complete data, or further information, on this test will be furnished upon request.

Watch this magazine for data on other performances of National Separators in this the greatest of all Mid-Continent Fields

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NATIONAL TANK COMPANY
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Sidney Powers New President of Geologists Association

(*Continued from page* 45)

Two papers on geophysics were followed by data on crooked hole problems and surveying. Donald C. Barton's paper on "Geophysical Prospecting for Oil" was by title, followed by "Factors Influencing Selection of the Geophysical Method," by Frank Rieber of San Francisco.

Taking up the crooked hole problem, P. C. Murphy and Sidney A. Judson of Houston localized the problem in the Gulf Coast, while R. P. McLaughlin of Los Angeles dealt with surveying by orientation from the surface. The Canadian angle of the question was revealed by E. P. Van der Linden, Calgary, Canada, while orientation of cores was discussed by George A. Macready of Los Angeles.

Walter A. English of Los Angeles had a paper on airplane photographs in geologic mapping.

By permission of the American Petroleum Institute, F. B. Plummer and E. C. Sargent presented a paper on "Geochemical Studies of the Woodbine Sand in East Texas." Research is revealed as in progress and conclusions not complete.

Spacing of wells was discussed by Roswell H. Johnson and Sylvester H. Rynearson of Pittsburgh. By title, Johnson and Frank G. Harris, also of Pittsburgh, discussed "Relative Reliability in Structure-Contour Maps Made From Comparative Elevations and Did Readings."

Theodore A. Link, Calgary, Canada, reviewed his "Experiments Relating to Salt Dome Structures,"—laboratory tests dealing with the probable formation of the domes. Similar studies were dealt with by F. M. Van Tyl, Golden, Colorado, whose measurement of the flowage pressure of rock salt at various temperatures as high as 1400 is described as supplying data favorable to the intrusive theory of the origin of salt domes.

Robert H. Cuyler, Austin, Texas, presented, by title, a discussion of the "Use of Vegetation as an Indicator of Geologic Formations."

Saturday's general session dealt with the area outside of the Mississippi Embayment.

"Pennsylvanian Overlap in the United States" was treated by A. I. Levorsen, Tulsa. R. J. Riggs and Homer H. Charles, Bartlesville, described the surface and subsurface geology of Oklahoma City as being similar in every essential to the Cushing, El Dorado, Garber or Granite Ridge type. Charles E. Decker, Norman, Oklahoma, raised the Simpson to the position of a group name and divided it into five formations, separated on both faunal and physical evidences. The same formation in Central Oklahoma was discussed by T. E. Weirich of Tulsa. R. C. Clifton of Enid, Oklahoma, discussed the Permian formation in Northwestern Oklahoma.

The Rocky Mountain section was treated by S. H. Knight, Laramie, Wyoming, dealing with the Pre-Dakota in Colorado and Wyoming; Turney Valley stratigraphy was discussed by P. D. Moore of Calgary, Canada; the Alberta Syncline by Theodore A. Link of Calgary, and the Ancestral Rockies, by Walter A. Ver Wiebe, Wichita, Kansas.

Pre-Mississippian rocks of Kansas and Oklahoma were discussed in relation by Hugh McClellan of Tulsa, while an unconformity in the Colorado group in Eastern Colorado was treated by J. Harlan Johnson of Golden, Colorado.

West Texas discussion included papers on the Yates pool by John Emery Adams of Midland, Texas, who speculated on the origin of the oil, and the Hendrick field was treated by A. L. Ackers, R. de Chicchis and R. H. Smith.

Geology of Vermillion Creek gas area in Wyoming and Colorado was treated by W. T. Nightingale, Rock Springs, Wyoming.

A preliminary report on Montague County, Texas, was given by Fred M. Bullard and Robert H. Cuyler of Austin, Texas.

Another new area was treated, by title, in a paper on the Valley Center field in Kansas, by Roy H. Hall and Arthur Price of Wichita.

Igneous rock found in the Shell-Humphreys well in Pecos County, Texas, was the subject of a discussion by E. L. Jones, Jr., and Russell C. Conklin of San Angelo, Texas.

R. Clare Coffin, Denver, and R. K. DeFord, Roswell, New Mexico, discussed the Hobbs field, telling of magnetic and gravity surveys which led to the drilling of the discovery well in Lea County, New Mexico.

E. Russell Lloyd, Midland, Texas, had as his subject: "Guadalupian Stratigraphy."

Progress of the "A. A. P. G. Co-operative Mapping Project in Texas" was reviewed by F. B. Plummer, Austin, Texas. It was shown that the first 12 months of this co-operation has resulted in work that would have required the work of a party working alone at least 12 years.

In the geophysical section the opening paper was by Donald C. Barton, whose review revealed that geophysical prospecting has continued with success as in previous years, the work being centered on the discovery of very deep domes in the Gulf Coast. Work continues to be done in Venezuela, in the Mid-Continent and West Texas. Other papers in this group dealt with specific problems and locations. There were 15 papers in all, only two of which were read by title.

The foreign paper section session was held Friday afternoon. It included five papers covering Turkey, by Shirley L. Mason of Pittsburgh; France and Northern Persia, both by Frederick G. Clapp of New York; Russian fields by Basil [illegible] Zavoico, Tulsa, and Southwest Ecuador by George Sheppard, Guayaquil, Ecuador, S. A.

The Society of Economic Paleontologists and Mineralogists, in addition to participation of members of that section in the general program of the association, held group sessions on Friday and Saturday at which 26 papers were presented. The annual election of officers of the society resulted in the selection of the following officers: J. A. Cushman, Sharon, Massachusetts, president; C. C. Church, San Francisco, vice president; Gayle Scott, Fort Worth, Texas, secretary and treasurer, and Raymond C. Moore, Lawrence, Kansas, editor. The new officers, with Marcus A. Hanna of Houston, the retiring president, constitute the board of directors.

Entertainment features included a trip to the Evangeline country and salt domes, a night trip on the Mississippi River and a buffet dance, in addition to the usual between-session trips to interesting points in the city and the gathering of college groups at special luncheons, etc. Women members of the association and wives accompanying their husbands had special entertainment features arranged for their benefit. Another feature of special interest aside from the regular program of the association was a lecture by Dr. Arthur L. Day, Carnegie Institution, Washington, D. C., on "Some Features of Active Volcanoes."

Geophysical Technologist For Government

Washington.—The United States Civil Service Commission announces an open competitive examination for an assistant geophysical technologist to fill a vacancy in the Bureau of Mines, Department of Commerce, for duty in the field, and vacancies occurring in positions requiring similar qualifications, for duty in Washington, D. C., or in the field.

Entrance salaries range from $2600 to $3100 a year; higher salaried positions are filled through promotion. Duties are to design, develop, make drawings and layouts, write specifications for, and supervise the construction and testing of new electrical, mechanical, accoustical, or visual apparatus required for geophysical prospecting.

Competitors will not be required to report for examination at any place, but will be rated on their education and experience. For full information, write to the commission at Washington, or to the secretary of the United States Civil Service Board of Examiners at the post office or custom house in any city.

The annual meeting of stockholders of the Richfield Oil Company of California, held in Los Angeles, March 20, was purely routine. All directors were re-elected, and at a directors' meeting immediately following, James A. Talbot, chairman of the board of directors, and C. M. Fuller, president, and all other officers were also re-elected.

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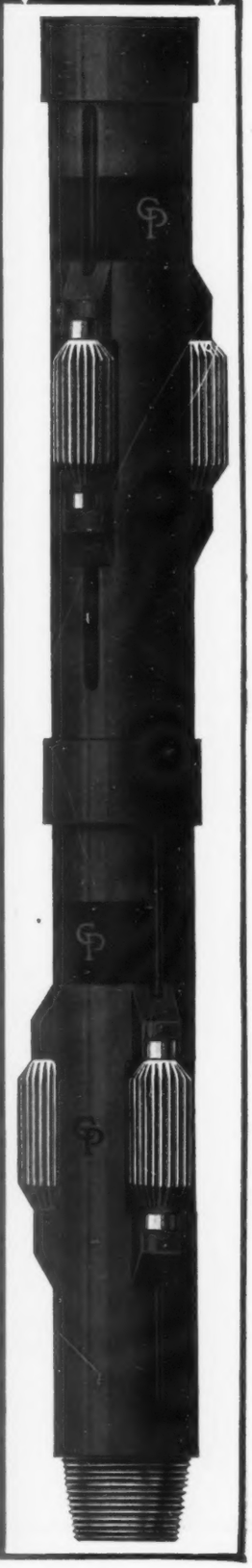

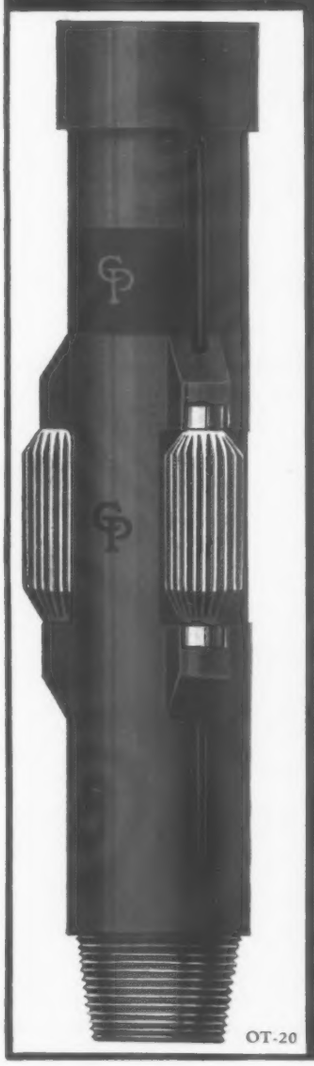

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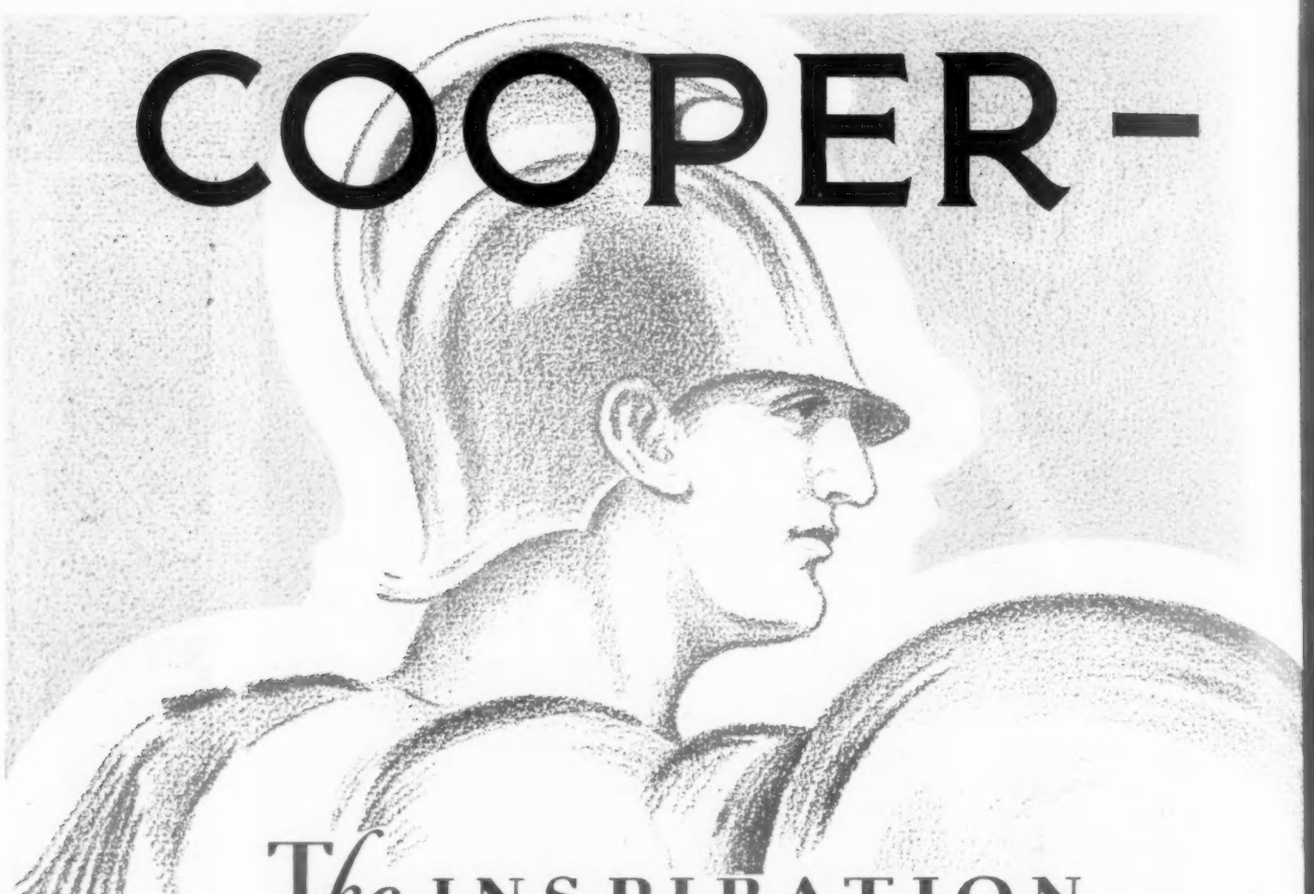

The INSPIRATION of LEADERSHIP

AN imitative creature is man. But if men gave themselves up to imitation entirely, and each followed the other, and so on in an eternal circle, there could never be any improvement among them.

Leadership is inspirational alike to the leader and the led. For, deep rooted in every man, is the undying urge to excel his fellows in something deemed valuable to them.

Having signalized himself, the leader still achieves, still pursues. Each new success is but a greater spur to heights beyond.

Fortunate, indeed, for mankind is the ever-quickening pace set by the leader in every field of human endeavor. The perpetual ambition to be foremost is but the device of Providence to bring man's works ever upward and ever onward toward perfection.

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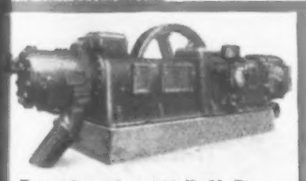
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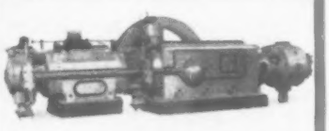
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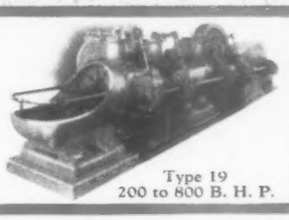
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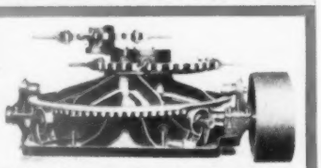
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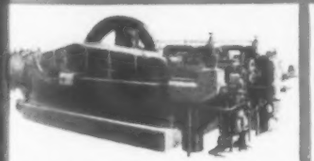
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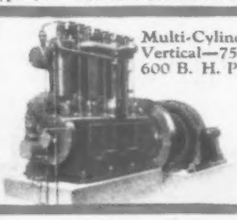
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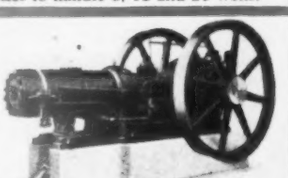
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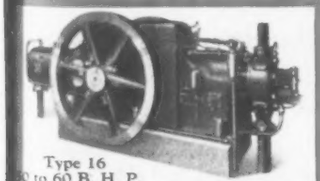
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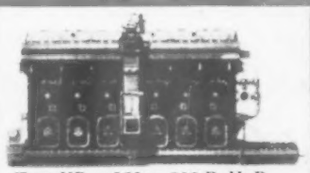
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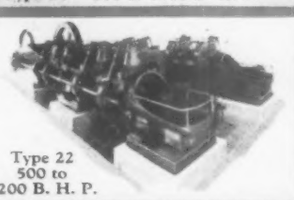
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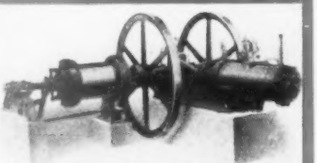
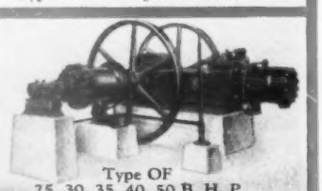

Type OC — 12½ to 35 B. H. P.

Type G-RC
25, 30, 35, 40, 50 B. H. P.

Type EP
75 to 275 B. H. P.

Type FC-E — 25 to 65 B. H. P.


Type OF
25, 30, 35, 40, 50 B. H. P.

Swabbing Wells in the Boryslaw Field

Swabbing Is Polands Most Important Production Method

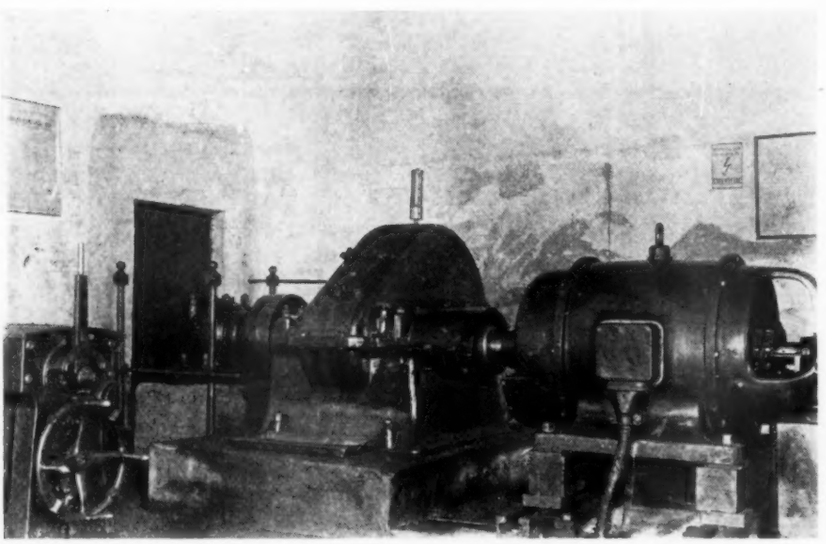
(*Continued from page* 30)

smaller swab suspended on the swabbing line which is freely passing through the upper swab. The smaller swab can be raised, independently from the main swab, and lowered within the limit of the length of the barrel.

When the whole device is lowered down to the bottom of a well, the smaller swab is moved up and down while the pump barrel and main swab remain stationary. Such "pumping" with the smaller swab usually comprises several strokes. Then both swabs, and the pump barrel are raised up to the top of the hole, and oil, carried above both swabs, recovered. This last kind of the swab greatly decreases the number of round trips with the swab, thus considerably prolonging the life of the swabbing line. Also, in a few instances, increase of production has been noticed. These swabs, however, have not been very extensively used as yet, and therefore cannot be fully criticized.

Some inventors modify the above type of swab by use of a standing valve at the lower end of the oil string. This valve can be either permanently or temporarily attached to the shoe of the casing. Such arrangement enable "pumping" of the well with only one swab. Advantages are about the same as those of the above described combination of swab and pump.

All these different designs, except that of the swab shown on Figure 1, have one disadvantage, namely, that they can be used only in wells with very low gas production, because otherwise they become easily gaslocked. Despite of the fact that present gas production in the Boryslaw field is very low, these swabs are not very popular with the operators, while the first type of swab is still most frequently used yielding very good results.

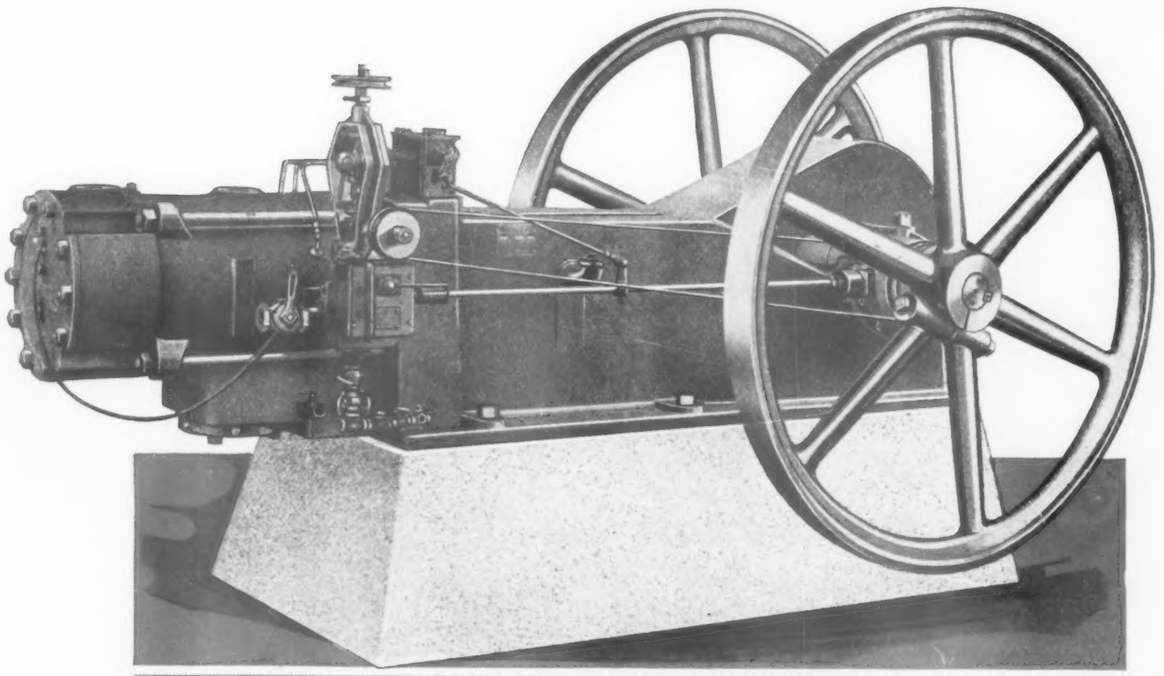


Electric motor—150 horsepower, 985 r.p.m.; reduction gear, 1:6, drives hoist at 155 r.p.m. Hoist and motor are in separate rooms

Swabbing Hoists

The first swabs were run from the sand reel of the Poletool rig. This caused the swabbing to be a rather slow operation, of little efficiency, and somewhat dangerous. Therefore, there has been developed special steam hoisting engines. Very often these hoists were built from two old steam drilling engines, by connecting their cranks directly to the line drum. After the world war, some of the major oil companies built large power plants, and started to use electrically driven hoists. At present there are in the Boryslaw field about 50 wells that are using electric hoists for swabbing.

Sizes of hoists are different. Steam hoists are being built up to 150 horsepower, while electric ones up to 150 KVA, and in a few instances up to 300 KVA, but the 110 KVA units are most frequently used. Sizes of line drums are 0.7, 0.9



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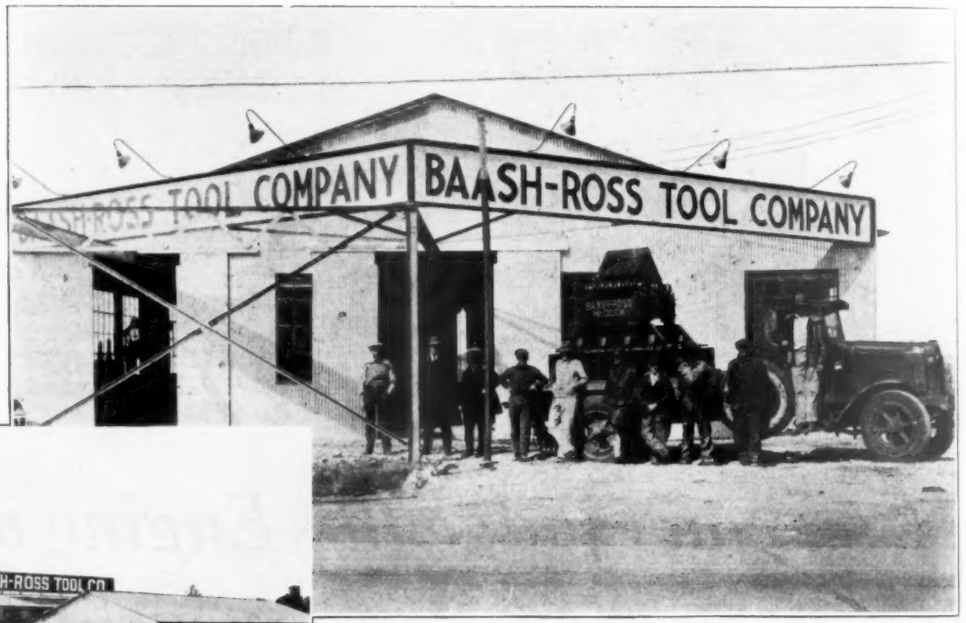

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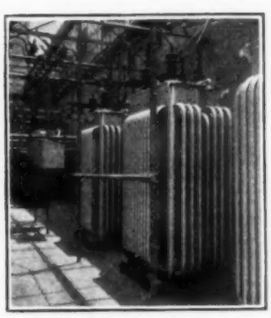
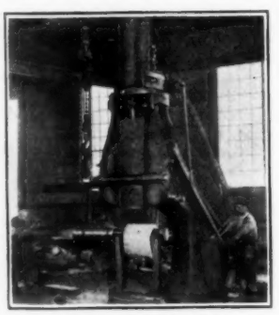
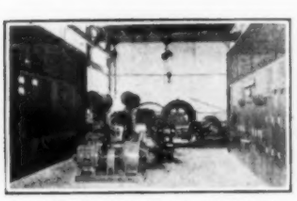


POWER TRANSFORMERS



BLACKSMITH SHOP



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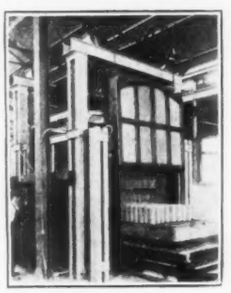

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under which a small building housing a few second-hand machines has expanded to 83,078 square feet of modern, efficiently equipped manufacturing plant in the short span of ten years . . .

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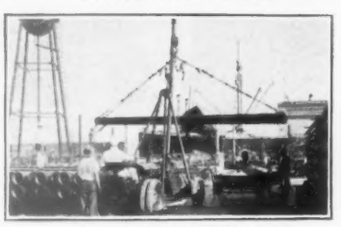
TYPICAL FIELD SHOP



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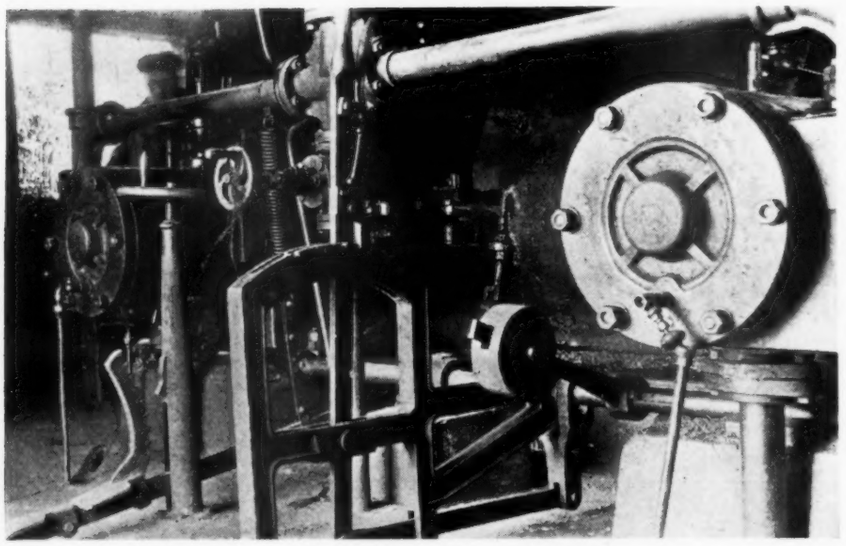

Steam hoist, 120 horsepower. In front are seen foot brake, hand brake and throttle

and one meter in diameter, and 1.4 to 1.8 meters in width.

There is one brake flange, riveted to each side of the drum, two meters in diameter and 0.22 meters in width. Each hoist is provided with two sets of brakes which can be independently operated; one set is operated by manual power, while the other one by any kind of mechanical device. Compression of air in steam cylinders, or regeneration of electric power is most frequently used for braking.

In addition, there is the depth indicator which is indispensable for safe operation of hoists. Electric hoists are also provided with tachometers indicating number of revolutions per minute, and with meters registering use of electric power.

Speeds obtained by modern hoists are about three minutes for downward trip, and four minutes for pulling out a well 1500 meters deep. Also, present electric hoists are very efficient and safe as compared with old steam engines.

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Hoists, according to the safety regulations of the Bureau of Mines, are housed in wooden shacks standing apart from the rig. These regulations also require that in case of an electric hoist is used, the shack housing the hoist is to be divided by a partition, into two parts, one containing the durm, the other the electric motor. This is to prevent ignition of gas by sparks from motor. Swabbing line, between the derrick crown and the hoist house, runs inside a wooden trough which collects drippings of oil and leads away to a small tank under the drum of the hoist. This trough is typically used in the Boryslaw oil wells.

Cost of Swabbing

Investment costs, as shown on Table VI, indicate that an electric swabbing outfit would be cheaper than the steam one,

Table VI.

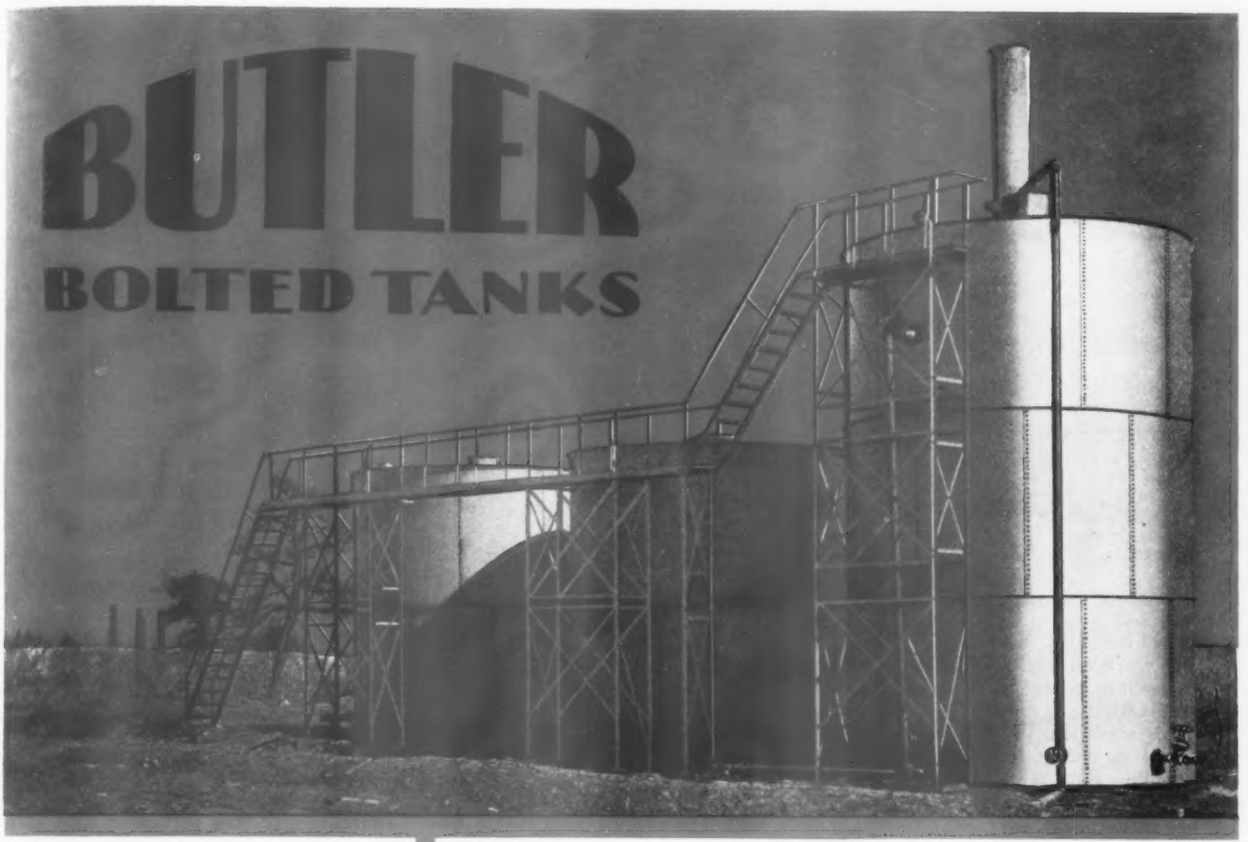
Investment costs of swabbing hoists (in terms of United States currency)

Item	Steam hoist	Electric hoist
Complete hoist	$3,000.00	$3,200.00
Two boilers or electric motor	2,800.00	500.00
Boiler, hoist shacks	600.00	400.00
Total	$6,400.00	$4,100.00

were it not necessary to have a steam hoist for reserve. Furthermore, one has to estimate cost of fuel or electric power, respectively, in order that it may be established which kind of hoists is cheaper. Present rates for natural gas, in the Boryslaw field, are about 0.33 cents per 35.31 cubic feet, while electric power costs two cents per kilowatt hour. With this power and gas rates, it was figured out that average daily cost of gas for steam engines is $3.12, while that of electric power is $4.80. This holds true when swabs are being run 24 hours a day, with an average of four round trips an hour.

Taking investment costs, and present power rates, one can say that small operators cannot profitably run electric hoists, while larger operators, particularly those who own power plants, can use electric hoists to advantage. In the future, however, gas rates may increase, and then electric hoists will prove to be more economical, but despite cheaper electric power, a very small company may not find it profitable to buy an electric outfit, and at the same time maintain a steam hoist. Thus the economy of electric power is still an open question. Meanwhile electric hoists are becoming more and more popular with major companies.

Operating costs of swabbing comprise three items: Power, labor, and swabbing line. Cost of power, as stated above, is from $3.12 to $4.80 a day, or $3.96 a day, as an average. On a steam driven hoist there are employed one driller at about $1.50 a day, one helper at $0.85, and one fireman at $0.95, this gives about $.330 per eight-hour shift, or $9.90 for three shifts. Finally there is the cost of wire line. This line is of several different sizes, but 14 and 15 millimeter lines are most extensively used. Cost of 1500 meters of these lines is $370.00 and $410.00, respectively. Summarizing all these items one obtains



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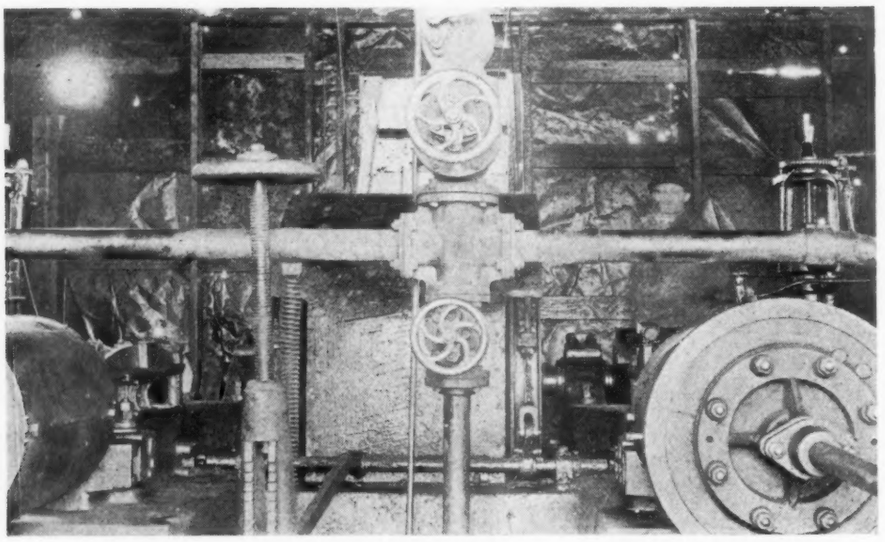

Steam Hoist

$16.11 as daily operating cost of swabbing. Present price of Boryslaw crude is $26.00 for one metric ton, or about $3.60 per barrel. With such costs, and with present price of crude, a well has to produce at least 4.5 barrels a day, in order to pay for operation.

Towards the end of 1929, daily production of the Boryslaw field, obtained through swabbing, was 1147 tons. During that period there were 345 swabbing wells, then an average daily production per swabbing well was 3.6 tons, or about 24 barrels. Thus, in most instances, swabbing is still economical.

The above figure of $16.11 does not include overhead expenses, depreciation of the well, etc. Overhead expenses, in a few instances are unreasonably high. This especially holds true for the largest company, owned by French capital, which has such high overhead expenses that it cannot profitably swab (or otherwise produce) wells with less than two tons or 14 barrels of daily production. This company is leasing out such wells to smaller operators, who still can pay for the lease, and make some money besides.

Bailing

Bailing, as an exploitation method of the Boryslaw field, is next in importance to swabbing. In this particular field it is used as a final stage of production. When

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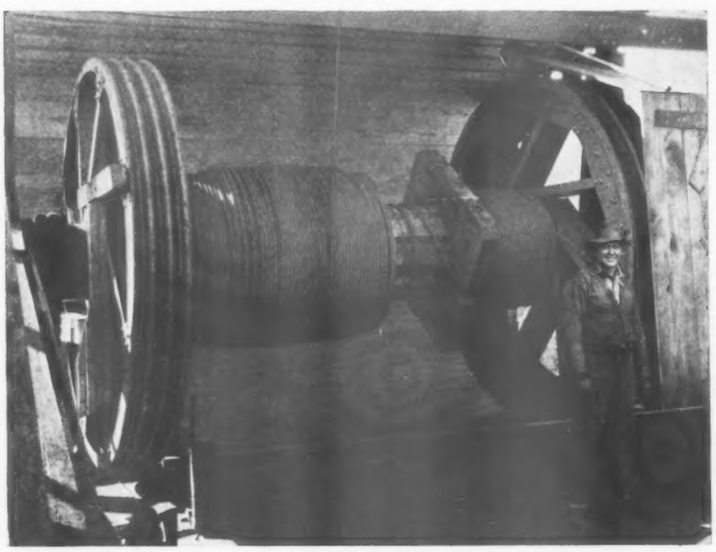

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swabbing becomes profitless, bailing takes place, as it is much cheaper, requires less power, and the life of the bailing line is considerably longer due to lower stress. Also it needs fewer trips, perhaps several hours each day, is sufficient to get the available oil from the well.

In bailing, there are used ordinary bailers with brass dart valve. Length of the bailer is different, depending upon power employed, and the amount of oil produced daily. Bailers are being run, either from sand reels of the drilling rig or from hoisting engines, the same as those used for swabbing.

In 1929 there were 93 bailing wells in the Boryslaw district. Out of this number, 40 wells (or 43 per cent) were using manual power, which was found by smaller companies to be more economical than any other kind of mechanical energy. Hand bailed wells are some 300 meters deep and produce very little oil. Sometimes deeper wells are bailed by hand. This, however, is done on such wells where either formation water or water from a poor water shut-off entered the well and reached a certain hydrostatical level, usually about 200 meters below the top of the hole. Oil in small amounts gathers above the water level, from where it can be easily bailed out.

Pumping

All Polish oil fields, except the Boryslaw district, are pumping wells on the large scale. In most fields wells are not much deeper than 300 meters and there the band wheel powers by means of shackle rods are pumping several wells at a time. Deeper wells are being pumped individually. In a few fields very shallow wells, up to 200 meters in depth, with about two barrels of daily production, are being pumped by manual power, usually four men are pulling at the end of a wooden walking beam whose ratio of power end to weight end is 10 to one. In all instances, deep well pumps, known among the operators as Jarecky pumps, are used. Their standing valve is permanently attached to the bottom of the barrel. This is a great disadvantage, as the whole pump has to be pulled out in case this valve requires some repair.

In the Boryslaw field pumping is limited to the shallower wells. Shortly after the world war, some operators tried to pump their deeper wells with the above described pumps, but they did not obtain any positive results. In 1923 there were several American deep well pumps used, which, after a certain amount of experimentation, proved satisfactory. However, the high congealing quality of the Boryslaw crude still offers a problem which is not solved as yet. One of the major companies, when using these imported deep well pumps, tried in several different ways to remove paraffine from the bottom of the well, and from the pump barrel. Washing of the well with naphtha was of no avail, and the same can be said about the American chemical, known under the name of "Berite." Also heating of the wells by means of electricity failed; steam heating, on the other hand, showed fairly good results.

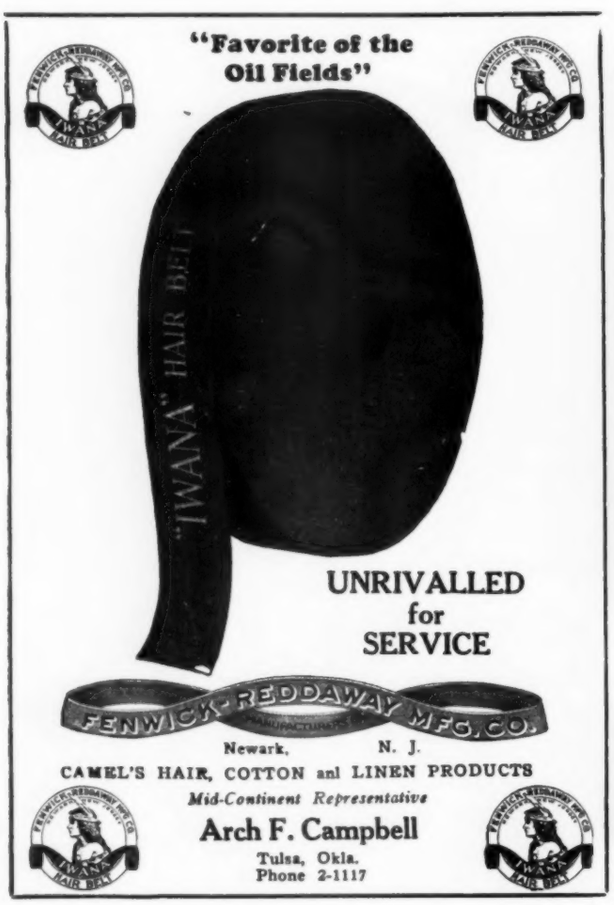
Despite of the fact that the deep well pumps still are working rather satisfactorily in almost all instances, where they were originally installed, this method of expliotation is as yet very unpopular in the Boryslaw district. This is due to several factors, namely, the high percentage of paraffine in Boryslaw crude, the great depth of oil sands, high price of crude, cheap labor, and the low cost of natural gas or electric power.

Paraffine content in Boryslaw crude runs as high as seven per cent; depth of oil sands ranges from 1200 to 1600 meters, and sometimes down to 1700 meters.

The present price of Boryslaw crude is $26.00 per ton, or about $3.60 per barrel. Wages of oil workers engaged in production run from $0.85 up to $1.50 a day. Cost of natural gas is from 0.33 cents to five cents for one cubic meter, while electric power costs about two cents for one kilowatt hour. The first two factors are beyond control, but the other ones are continuously changing. The rather high prices of American pumps and the extreme conservatism of Polish operators can be considered as other reasons why pumping is not conducted on a large scale.

Air Lift

In the Bitkow field there are three or four wells which are producing by air lift.



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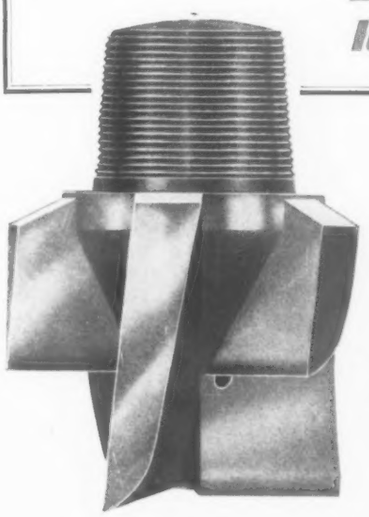

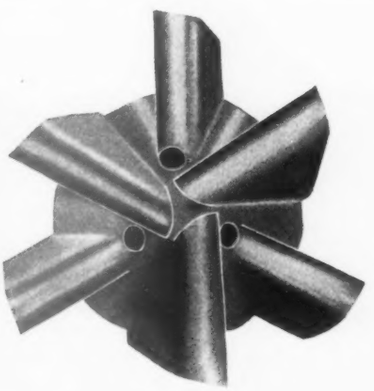

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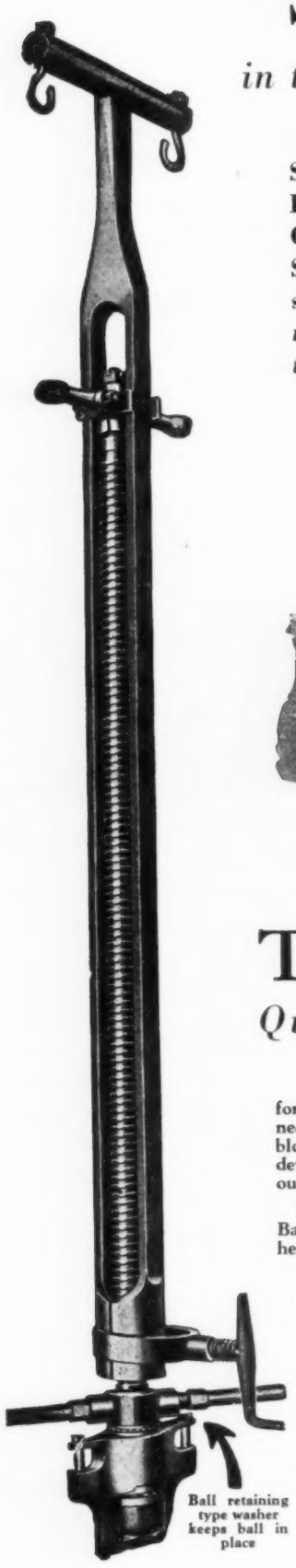
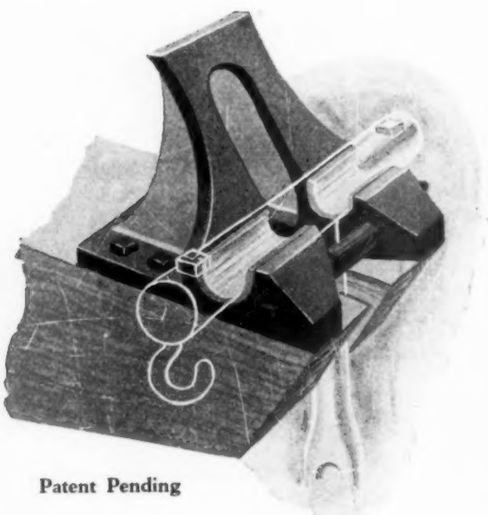


Ball retaining type washer keeps ball in place



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BURNS
Tool Company
OKMULGEE - OKLAHOMA

These wells belong to a small company whose technical director constructed several flowing devices. He had been experimenting with them for some three years, and lately obtained encouraging results. The whole thing is not quite out of the experimental stage as yet.

The compressor used in this work is of 10 cubic meter capacity of air per minute, at the pressure of 20 kilograms per square centimeter, and it is driven by a 100 horsepower gas engine. Wells are intermittently operated, one at a time. Their daily production ranges from 0.5 to nine tons. Air is used as a lifting medium, but the company is anticipating the use of natural gas for this purpose, thus saving lighter constituents of the crude. Undoubtedly, air and gas lift have good prospects as a future production method for Polish oil fields, but at the present time their development cannot be foretold.

Methods of Increasing Production

Two methods of increasing production have been tried in Poland, namely, repressuring and shooting wells. Several years ago, repressuring was applied to one of the smaller oil fields, but due to some unknown reasons it was of no avail. This year one of the major companies is again trying this method. For this purpose a small field, almost exclusively owned by the company, was picked out. Results of this method will be known in the near future.

Shooting wells lately is becoming very common in some of the Polish oil fields. Especially in the Boryslaw field, where it is the most important way of increasing production. Dynamite is used almost exclusively for shooting. There are two kinds of torpedoes. The first kind uses dynamite stuffed in a tube, made of sheet iron. The other torpedoe is composed of sticks of dynamite which are tied around a 15 millimeter hemp rope.

Results of shooting are very different. In such cases where the exact depth of the oil sand is known, results are positive; but where depth is unknown there are no results obtained. This latter case is true of a great number of old wells, whose drilling records became lost during the war. In a few cases there were negative results obtained, this probably was due to the use of too much explosive.

Summarizing, one can say that swabbing is still yielding the bulk of crude, but it is largely confined to the Boryslaw field, where in other fields it is beginning to be discontinued. The Boryslaw field is in its aging stage, and swabbing is gradually becoming unprofitable. One of the major operators already cannot afford to swab wells with less than two tons of daily production. There are two possibilities, either to abandon wells producing below their economical limit which ranges from 4.5 to 14 barrels a day, or another production method decidedly cheaper than swabbing must be employed. Pumping has a great field for development, also gas lift with specially designed flowing devices; and perhaps the use of hot gas to combat paraffine, may prove more efficient than swabbing.

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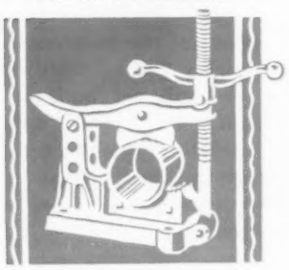

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COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Empire Oil & Ref. Co., Koogler 93, ne sw ne 20-26-5e	75	2547
Hess 20, sw se nw 18-26-5e	*	2775
CHAUTAUQUA COUNTY—		
Elmwood Oil Co., Hilton 4, c sw ne 13-32-9e	*	1400
CLAY COUNTY—		
Skow et al, Strut 1, sw c se 16-9-4e	*	2510
COWLEY COUNTY—		
Trees Oil Co., Brubaker 1, c sw ne 12-34-6e	¶7	1097
Crow et al, Conrad 1, se c ne 8-32-5e	¶¼	750
Minnehoma Oil Co. et al, Denton 4, se ne se 4-31-8e	100	1986
Wakefield et al, Moore 1, se ne nw 18-30-5e	6	2869
Osborn 2, se sw ne 18-30-5e	*	3340
DOUGLAS COUNTY—		
Utilities of Kansas, Ott 1, sw se sw 17-13-21e	*	1220
ELK COUNTY—		
Wyatt et al, Baker 1, se ne sw 10-31-10e	30	2005
FRANKLIN COUNTY—		
Howard & Howard, Barton 2, c ne se 25-16-17e	¶5	1226
GREENWOOD COUNTY—		
Empire Oil & Ref., Haggart 7, ne sw nw 9-25-13e	40	1470
Bisagno et al, Gilroy 2, se c sw sw sw nw 5-25-13e	¶½	1490
Shull Drilling Co., Allis 2, nw se nw 17-34-13e	15	1600
Sheedy et al, Dalton 2, c nw nw 5-24-13e	25	1652
Syndicate Oil Co., Shook 3, nw sw nw 6-24-12e	200	1778
Empire Oil Ref. Co., Edwards "B" sw se se 21-23-11e	465	1959
Sheedy et al, Green "B" 3, se nw nw 12-23-9e	20	2374
Derby Oil Co., Young 5, nw ne se 22-22-13e	175	1823
Walton Oil Co., Berry 1, ne c se 34-23-13e	*	1775
HARVEY COUNTY—		
Jolly & Ogg, Hupp 1, se c ne 22-23-1w	*	3535
LABETTE COUNTY—		
Veeder Supply Co., Stonaker 1, csl ne 13-32-17e	*	1229
LYON COUNTY—		
Sheedy et al, Reese 1, sw c se 16-20-10e	*	2401
MARION COUNTY—		
Youker et al, Riffel 1, nw sw se 10-17-4e	115	2375
Empire Oil Ref. Co., Block 1, ne nw sw 27-19-2e	*	3035
MARSHALL COUNTY—		
Sincox et al, Dowrimple 1, c n½ nw 22-4-9e	*	1345
McPHERSON COUNTY—		
Shell Pet. Corp., Stuckey 3, sw se se 9-21-3w	920	3370
Stuckey 2, nw se se 9-21-3w	1175	3350
Stuckey 1, ne se se 9-21-3w	1205	3370
Gypsy Oil Co., Krehbield 1, se c 3-21-3w	1025	3428
Indian Territory Illuminating et al, Voshell 2, se ne nw 9-21-3w	310	3409
McPherson Oil & Gas Develop. Co., Koehn 1, c se 12-20-2w	950	2974
RENO COUNTY—		
Gypsy Oil Co., Hudson 1, c se ne 27-24-10w	*	4620
RICE COUNTY—		
Independent Oil & Gas Co., Mezger 1, sw c ne 21-20-10w	495	3341
Slick et al, Schurr 1, ne c sw 21-20-10w	900	3308
SEDGWICK COUNTY—		
Shell Pet. Corp., Fischer 6, ne se se 15-26-2e	700	3209
SHAWNEE COUNTY—		
Forrester et al, Hummer 1, ne c 14-11-16e	*	3023

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This week	Completions Last week	Producers This week	Producers Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial This week	Prod. Last week
Arkansas	6	7	3	3	..	..	3	4	130	60
California	29	28	26	27	..	..	3	1	13,000	11,815
Illinois	1	7	..	6	..	..	1	1	...	345
Indiana	7	2	3	1	2	1	2	..	90	32
Kansas	41	14	21	6	5	1	15	7	8,971	1,635
Kentucky	12	34	9	19	..	4	3	11	425	448
Louisiana	22	22	14	8	1	3	7	11	4,640	3,075
Michigan	1	8	1	6	..	..	..	2	100	470
New Mexico	2	1	..	..	1	..	1	1	...	...
New York	18	..	15	..	1	..	2	..	96	...
Ohio	34	40	14	15	11	14	9	11	538	424
Oklahoma	89	68	52	39	9	6	28	23	107,977	54,421
Pennsylvania	50	2	45	1	4	1	1	..	311	3
Texas	136	125	71	66	9	11	56	48	28,378	29,686
West Virginia	15	31	3	3	11	22	1	6	100	20
Total	463	389	277	200	54	63	132	126	164,756	102,434
Increase this week	74	..	77	..	..	..	6	..	62,322	...
Decrease this week	..	..	..	..	9	..	..	..	...	...

Company, Well and Location	Initial Production Bbls.	Depth
STEVENS COUNTY—		
Argus Gas Co., Carpenter 1, (owdd) c nw nw 29-33-36w	¶8	2808
TREGO COUNTY—		
R. E. Day et al, Eaton 1, ne nw sw 2-11-21w	*	3871
WOODSON COUNTY—		
O. K. O. Oil Co., Houghland 2, sw ne ne 2-24-14e	35	1657
Denton et al, Burger 1, se c sw 22-23-14e	*	1670

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
BECKHAM COUNTY—		
Sayre Oil & Refg. Co., Proch 1, (owdd) sw nw se 24-9-23w	100	2697
CADDO COUNTY—		
Magnolia Pet. Co.'s Caddo-Rowe 6, ne sw ne 36-6-10w	540	3327
COTTON COUNTY—		
Harris and McNeal, Chambers 1, sw c nw 1-2s-10w	95	2170
Shasta Oil Co.'s Whitehead 2, sw c nw nw ne, 1-2s-10w	15	2200
Cullum and Perkins' Voorhies 1, ne c sw se 29-1s-9w	*	2500
Shasta Oil Co.'s Tan-Nah, sw c ne 31-1s-9w	*	2602
CREEK COUNTY—		
J. W. Merritt et al, Richards' 1, nw se ne 27-18-8e	15	1318
H. L. Skelly and C. O. Buckles' Goodman 2, sw c 23-17-9e	¶2	1260
GRANT COUNTY—		
Continental Oil Co. et al's Frantz 4, c nw se 35-28-3w	¶8	4200
GREER COUNTY—		
Helmerich and Payne's Houck 1, c nw nw 23-6-24w	*	2242
HUGHES COUNTY—		
Magnolia Pet. Co., Oliphant 6, ne se nw 18-9-9e	175	3471
Troutt Drilling Co., Bird 3a, cwl se nw 5-8-11e	*	1670
KAY COUNTY—		
Wentz Oil Corp., Welch 23, ne c sw, 17-28-1e	100	3309
MARSHALL COUNTY—		
W. A. Neff et al, Couch 1, sw nw se, 11-5s-5e	*	1035
MUSKOGEE COUNTY—		
Ray & Berry, Johnson 1, cnl nw sw 14-13-18e	¶1½	797
L. R. Kershaw, Fee 3, se c ne nw se 15-13-18e	¶1½	673
Bryant Pet. Co., Barnett 4, (owdd) se c ne 8-15-15e	25	1679
Gillespie & Hale, Jennings 1, se sw nw 1-13-18e	*	1255
M. S. Mussellem, Cole 2, se nw ne 5-13-19e	*	1465
D. L. T. Company, Mackey 1 (owdd) ne c sw sw 9-15-18e	*	800

Company, Well and Location	Initial Production Bbls.	Depth
OKFUSKEE COUNTY—		
Suppes et al, Severs 1, nw sw se 35-11-9e	15	1489
W. L. Unburn et al, Barnett 1a, cel ne nw 3-10-11e	*	2245
Champlin Oil & Ref. Co. et al, Tucker 13, sw ne sw 15-11-1e	*	3520
OKLAHOMA COUNTY—		
Shell Pet. Corp., Petty 5, nw sw ne 30-11-2w	¶1-510	6198
Sinclair Oil & Gas et al, Kinter 3, nw sw se 30-11-2w	¶100-700	6435
Shell Pet. Corp., Petty 2, sw c ne 30-12-2w	¶56-285	6298
Indian Territory Illuminating Oil et al, Farley 2, sw nw nw 19-11-2w	¶30-39,666	6465
Unsell-Krueger 1, ne c 23-11-3w	3000	6491
Trosper 4, sw se sw 13-11-2w	¶45	6417
Trosper 7, ne nw sw 13-11-3w	¶160	6364
A. Brokaw 2, ne c 13-11-3w	6327	6494
A. Brokaw 1, nw ne ne 13-11-3w	2090	6437
Cromwell-Franklin Oil Co., Trosper Park 4, sw c ne 13-11-3w	5950	6450
Indian Territory Illuminating Oil et al, Trosper 1, nw sw nw 12-11-3w	4120	6397
Wirt Franklin Pet. Corp. et al, Lowery 7, cel nw 12-11-3w	22,670	6352
Cromwell-Franklin Oil Co. et al, Trosper Park 11, se c 12-11-3w	6035	6500
OKMULGEE COUNTY—		
Kirkland & Son, Bell 10, sw c se ne nw 17-15-13e	8	1481
OSAGE COUNTY—		
Branstetter and Barnsdall Oil Co., 8, ne c se 22-22-11e	10	1643
Indian Territory Illuminating, 1, nw ne sw 32-23-10e	20	2568
Utilities Producing Co., 1, ne c nw ne se 1-26-6e	¶2	1411
McCune, Wormser et al, 13, se c nw 15-24-8e	*	511
PAYNE COUNTY—		
Transcontinental Oil Co., Lincoln 3, se sw se 4-18-5e	180	3638
Shaffer Oil & Ref., Echo Hawk 3, ne nw ne 9-18-5e	850	3608
Shaffer Oil & Ref. et al, Tucker 12, sw ne sw 15-11-11e	*	3641
PITTSBURG COUNTY—		
R. P. Lester et al, Carney 2, ne nw ne 15-17-18e	¶25	1918
PONTOTOC COUNTY—		
Homaokla Oil Co., Richie 7, sw se se 1-4-7e	250	2021
American Oil & Ref. Co., Robertson 5, se sw se 19-5-5e	40	2454
Benedum & Trees, Mole 7, se c ne 31-5-5e	35	2604
Payne & Clark, Shields 2a, sw c se 20-5-8e	15	952
Clark & Cowden, Clark 2, se nw nw 29-5-8e	18	895

Company, Well and Location	Initial Production Bbls.	Depth
POTTAWATOMIE COUNTY—		
Gypsy Oil Co., Rose 1, sw se ne, 4-7-4e	65	4215
Magnolia Pet. Co., Wyatt 2, sw c ne 4-7-4e	568	3954
J. H. Gwin, Coley 1, nw se se 24-7-4e	710	3857
Gypsy Oil Co., Swartz 1, nw se nw 2-7-4e	117	3845
Independent Oil & Gas et al, Larsh 1, ne sw sw 2-7-4e	35	3950
Pure Oil Co., Mayes 1, se c nw,9-8-5e	*	4350
Duvall 2, ne c se 4-7-4e	*	4032
Mid-Continent Pet. Corp., McGee 1, sw c nw 3-7-4e	*	4060
SEMINOLE COUNTY—		
Carter Oil Co., Carter-Slick 3, se nw sw 11-9-6e	2625	4109
Carter Oil Co., Wrightsman 3, sw ne ne 19-9-6e	110	4233
Mid-Continent Pet. Corp., Smith 14, sw nw se 5-7-7e	1135	3200
Sinclair Oil & Gas Co., Phillips 9, sw ne se 5-7-7e	305	3251
Magnolia Pet. Co., Brame 3, sw ne ne 8-7-7e	500	3205
Mid-Continent Pet. Corp., Harjola 4, nw se ne 8-7-7e	200	3280
Pure Oil Co., Harjo 6, nw sw ne 11-7-6e	1000	3155
Magnolia Pet. Co., Reed 1, ne se nw 31-6-8e	123	2644
Pure Oil Co., Bates 8, sw se ne 13-6-7e	40	2847
Bates 9, ne c 13-6-7e	1600	4164
Bates 10, ne c 13-6-7e	2400	4207
Empire Oil & Ref. et al, Sachemeche 3, ne sw sw 9-6-6e	780	2897
Champlin Oil & Ref. et al, Sachemeche 3, ne sw sw 9-6-6e	170	2992
Harris et al, Harjoche 3, se c 8-6-6e	1275	2907
McCulloch Oil Co., Snyder 1, se sw ne 8-6-6e	30	2845
Magnolia Pet. Co., Reed 3, nw c se 13-5-7e	210	2560
Parney 2, sw se se 14-5-7e	120	4155
Wofford Drilling Co. et al, Davis 1, se c nw 29-8-7e	*	4292
McCulloch Oil Co., Davis 1, sw c nw 1-6-6e	*	3096
Mid-Continent Pet. Corp., Talahoke 1, se c nw 6-6-6e	*	3307
Harris et al, Harjoche 6, sw ne se 8-6-6e	*	2966
Harris et al, Harojoche 6, sw ne se 8-6-6e	*	3040
STEPHENS COUNTY—		
Pace et al, Houston 7, ne c sw ne sw 2-2s-8w	*	2712
Magnolia Pet. Co., Peck 10, ne sw ne	*	2190
McClure 1, ne c 19-1s-8w	*	2320
WAGONER COUNTY—		
Western Gas & Electric Co., Barnett 4, c w2 ne 34-18-17e	¶1/3	855
Mack Drilling Co., Daniels 1, c se nw 25-16-16e	*	1172
Dallas Guiger, Roberts 2, se c nw sw 18-19-16e	*	851
Roberts 3, nw c sw sw 18-19-16e	*	849
Roberts 4, c sw 18-19-16c	*	848
Roberts 5, se c sw sw 18-19-16e	*	853

EASTERN STATES

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
PIKE COUNTY—		
F. B. Hillis & Co., Robescheib 1	30	1309
Wm. Bell & Co., Barkley Hill 2	30	1314
PERRY COUNTY—		
Hitchen & Robinson, Schneider 1	*	330
J. H. McClurkin & Co., Lucke 1	*	980
ADAMS COUNTY—		
Scoofakes & Heflin, Stanley 5	30	1034
MADISON COUNTY—		
Pendleton Natural Gas Co., Brown	¶½	....
HANCOCK COUNTY—		
Sam Titus & Co., Overman 1	¶¼	....

ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
CRAWFORD COUNTY—		
O. R. Oil & Gas Co., Savidge 1	*	1006

MICHIGAN

Company, Well and Location	Initial Production Bbls.	Depth
MIDLAND COUNTY—		
Pure Oil Co., State-Midland A-2	100	3570

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
BOONE COUNTY—		
G. L. Cabot, Inc., Federal Coal 36	¶1¾	....
Unknown Parties, Thompson 1	¶1	....
Mountain States Fuel Co., Prince 1	¶1	....
CALHOUN COUNTY—		
F. F. McIntosh, McCoy 1	¶1	....
United Fuel Gas Co., Shafer 4091	¶2	....
KANAWHA COUNTY—		
Allegheny Gas Co., Laird-Bradford 4	¶1	....
Ten Mile O&G Co., Dickinson 9	¶1	....
WAYNE COUNTY—		
Wayne United Gas Co., Fee 23	¶1	....
Fee 24	¶1	....
PUTNAM COUNTY—		
Sowders O&G Co Pines-Moore 2	¶1½	....
Morford 1	¶1¼	....
ROANE COUNTY—		
Heck Oil Co., Tallman 4	50	....
CLAY COUNTY—		
United Fuel Gas Co., Hanshaw 1	35	....
RITCHIE COUNTY—		
Hope Construction & Ref. Co., Bradley 6	15	....
TYLER COUNTY—		
C. Galloway & Co. Flesher 1	*	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
OHIO COUNTY—		
Hupp, Duff & Co., Stewart 5	200	599
D. J. White & Co., Bickett 6	15	....
Jas. C. Ellis & Co., Burdette 3	10	....
The Ohio Oil Co., Kelley 6	10	....
Smith & Co., Dawson 5	*	....
Cumberland Pet. Co., Hamilton 3	*	....
DAVIESS COUNTY—		
Miller & Damron, Howard 3	25	....
WARREN COUNTY—		
S. F. Durbin & Co., McGinnis 1	*	480
McLEAN COUNTY—		
Ohio Oil Co., McManama 3	50	....
Carmon & Co., McManama 1	50	1123
HENDERSON COUNTY—		
Turner & Lewis, Farley 3	30	....
Niagara Oil & Gas Co., Knight 3	35	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
McVey & Co., Siley 1	¶¼	1218
Jerry Buckley, Wayne-Dutton 7	1	1594
Otto Becker & Co., Gordon 4	*	1322
Harry Binegar, Binegar 4	*	1665
MORGAN COUNTY—		
Williams Bros., Smith 7	¶½	810
Ohio Fuel Gas Co., Miller 3	¶¼	1612
Chappelear 2	¶¼	1598
MONROE COUNTY—		
Mike Stoffell & Co., Hall 3	¶¼	1350
Local Oil Co., Mallett 1	¶¼	845

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
MUSKINGUM COUNTY—		
Athey Co., Mooreland 2	¶1¼	3852
Ney & Co., McDonald 1	68	3489
Wm. Kline & Co., Ramsbottom 2	52	....
Abe Snider & Co., Bride 1	*	3560
Wm. Kline & Co., Ramsbottom 4	75	....
LICKING COUNTY—		
Midland Oil Co., Bowers 2	30	....
Bishop, Deetry & Co., Watson 3	3	....
Whitehill Oil Co., Rine 4	¶¼	691
Hope Construction & Ref. Co., Rector 6	11	635
VINTON COUNTY—		
East Ohio Gas Co., Elliott 4	3	....
Robinson & Ball, Uesinger 1	¶¼	....
Hope Construction & Ref. Co., Dass 2	2	....
ASHLAND COUNTY—		
Robinson & Co., McFadden 6	2	....
Ohio Fuel Gas Co., Kauffman 1	*	....
ATHENS COUNTY—		
Fairfield O&G Co., Jeffers 1	¶½	1505
Ohio Fuel Gas Co., Brawley 3	¶¼	1428
HOLMES COUNTY—		
East Ohio Gas Co., Sterling 3	165	3427
Ohio Fuel Gas Co., Baker 1	*	....
TUSCARAWAS COUNTY—		
Gordon Oil Co., Hoffman 2	100	3623
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek Coal 84	25	3313
PERRY COUNTY—		
Pure Oil Co., Blair-Jenkins 1	*	1100
LORAIN COUNTY—		
Ohio Fuel Gas Co., Thome 1	**	....

Company, Well and Location	Initial Production Bbls.	Depth
WAYNE COUNTY—		
Ohio Fuel Gas Co., Miller 1	*	
FAIRFIELD COUNTY—		
James Crawford, Smith 1	*	250

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
SENECA COUNTY—		
Bacon & Wade, Summers 1	1	10

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Bingham 533, tr 116	7	
Bingham 533, tr 117	12	
Bingham 387, tr 1	2	
Bingham 576, tr 1	3	
Bingham 439, tr 128	2	
Bingham 212, tr 51	3	
Bingham 21	4	
Taylor 48	2	
Taylor 49	2	
Melvin 276	2	
Redfield 20	7	
Fee 108	2	
Fee 109	2	
Fee 111	2	
Fee 112	2	
Kinzue 199	17	
Kinzue 200	12	
Kinzle 201	3	
Red-Hodge 68	7	
Forest Oil Corp. Fee (14 wells)	28	
Niagara Oil Corp., (35 wells)	70	
Mix Creek Oil Co. Fee (1 well)	3	
Niagara Oil Corp., Lawton (1 well)	30	
Healey Pet. Corp., Healey (8 wells)	17	
Burdick Bros., Burdick 8	7	
Schorman & Stiver, Norton 3	12	
H. L. Morris, Morris 1	2	
Walker Bros., Bingham 7	4	
Grant & Mohan, Bingham 472, tr 8	7	
MIDDLE FIELD—		
South Penn Oil Co., Wardwell 8	2	
S. Y. Ramage, Grandin 22	3	
Hague & Co., Aspey 4	2	
Allegheny Gas Co., Jameson 1	2	
BUTLER COUNTY—		
L. T. McGinnis, McGinnis 15	3	
Forcht Bros., Forcht 3	3	
Wm. Simmins, Mickley 1	3	
Hildebrand & Co., Hoffman 1	¶1	
Burton Bros. & Co., Raisley 1	¶1	
Gunst & Co., Gunst 1	*	
VENANGO-CLARION COUNTIES—		
United Nat. Gas Co., Schwab 3928	¶½	
C. L. Irwin & Co., Hoffman 2	¶½	
F. C. Deemer, Meherton 20	2	
Meherton 21	2	
Santy Oil Co., Sloan 10	3	
Sloan 11	3	
South Penn Oil Co., Melford 36	2	
Melford 37	2	
Splane & Co., Oil City Nat. Bank 38	2	
Oil City Nat. Bank 39	2	
S. Y. Ramage, Simcox 67	2	

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Cook Bros. Holly 1	¶½	
Ryder-Richmond Oil Corp., Fee 70	3	
Fee 71	3	
Fee 72	3	
Ryder-Richmond Oil Corp., Fee 73	3	
Fee 74	3	
Fee 75	2	
B. C. Fuller, Fuller 3	3	
First Nat. Bank of Olean, Birticel 16	12	
Cuba Nat. Bank, Fee 25	3	
A. C. A. Oil Corp., Fee 3	2	
Homestead Oil Co., Fee 1	5	
Sepany Oil Co., Stewart Estate 1	25	
Stewart Estate 2	17	
Wm. Bartoo & Co., Bartoo 2	8	
Wilbart Oil Co., Wilbart 4	4	
Rich Oil Co., Fee 1	*	
Charles Phillips, Phillips 1	*	

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
OUACHITA COUNTY—		
Sunby et al, Watts 3, 27-15-15	25	2052
UNION COUNTY—		
Southern Crude Oil Purch. Co., F. Murphy 3, 4-16-15	20	1973
Federal Pet. Co., Flenniken 5, 6-16-15	5	2021
Houston Oil Co., O. H. Milner 5, 3-16-15 (sec. compl.)	20	2014

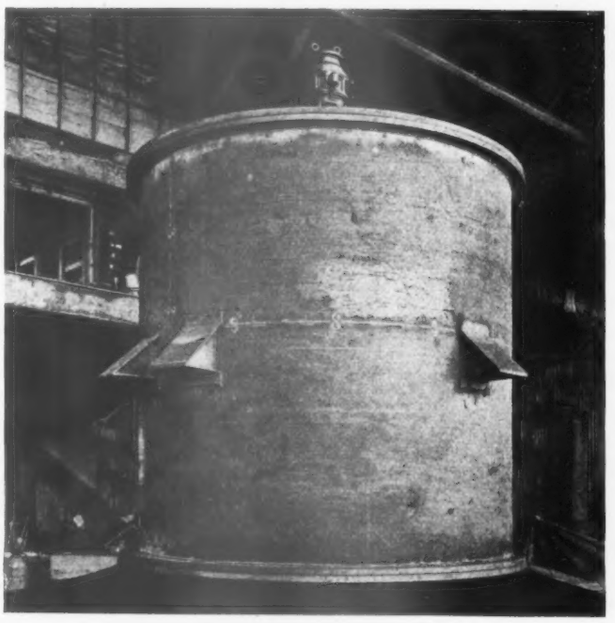
"Welds with your Uranium Electrodes were more homogeneous and resistant to corrosion than are ordinary welds"

BECAUSE of their proven superior qualities as indicated in the accompanying letter, the Portland (Ore.) Gas & Coke Company specifies.

Quasi-Arc Electrodes

for repair and replacement work.

WHEREVER welds of great strength with high resistance to corrosion and with high immunity to fatigue from impact and torsional vibrational stresses are essential, work done with Quasi-Arc Electrodes will be found superior.



PORTLAND GAS & COKE COMPANY

PUBLIC SERVICE BUILDING

PORTLAND, OREGON

Quasi-Arc Incorporated
11 West 42nd Street,
New York, N. Y.

July 25, 1929

No. 1438 Attention: Mr. H. S. Ayres

Gentlemen:

In reply to your letter of July 19th, we have no objection to the use of the photos of our agitator in connection with the name of our company in your advertising.

The agitator is used in the process of refining benzol and toluol for motor fuel purposes and the rubber and paint industries. The crude light oil is washed with concentrated Sulphuric Acid which is followed by Caustic Soda solution. An agitator with seams welded with bare wire electrodes, after five years service shows the weld metal entirely corroded away from the inside seams of the agitator shell.

Laboratory tests indicated that welds with your Uranium electrode were more homogeneous and resistant to corrosion than ordinary welds, which led us to decide on the use of Uranium rods in welding the new agitator. In fact we are, wherever conditions to which our apparatus is subjected are corrosive, making repairs and replacements with Quasi-Arc welded material.

Yours very truly,

Portland Gas & Coke Company

E. H. HALL

General Superintendent.

Then there is the further advantage of saving in time, labor, material and money. The labor saving runs from 30 to 50 per cent, and there is less dependence upon the skill of the operator. As the weld metal from Quasi-Arc Electrodes is stronger, a smaller and faster placed deposit is justified, and the strength is so uniform that calculation of the performance of the weld can be accurate and dependable.

That Quasi-Arc Electrodes will give you better welds at lower costs has been proven throughout the world by records of efficiency and economy which cannot be questioned. These records together with other convincing proof will be submitted to you by Quasi-Arc Service Engineers.

Quasi-Arc Electrodes are supplied in various diameters and in pure metal or alloy compositions. They are equally advantageous on new construction or small repair work, and are often the only means for meeting strict specifications on important jobs.

If you are not already thoroughly posted on Quasi-Arc Electrodes and their distinct superiority, you are overlooking one of the greatest opportunities in the welding industry.

Let us put before you the full details. Give us information as to the type of work you are doing and we will send data of successful performance on jobs of similar character.

QUASI-ARC

Incorporated

11 West 42nd Street, New York, N. Y.

CHICAGO CLEVELAND TULSA LOS ANGELES

Representatives in 27 of the World's Largest Industrial Centers

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ELWOOD—		
Pacific Western Oil Co., No. 92-2	3500	6500
LONG BEACH—		
The Texas Co., Flowerstate 2	50	6830
Bixby & McAdams, No. 1	1000	6795
I. E. O'Donnell, Dabney 1	150	6850
A. H. McFarland Synd., No. 2	1400	4250
MARICOPA FLATS—		
North American Cons., Kerchoff 1	150	4175
No. 4, 8-11-23	160	3510
Standard Oil Co., Fee 9-9K, 9-11-23	100	3660
Wellington Oil Co., No. 2, 8-11-23	1250	3440
MT. POSO—		
General Pet. Corp., Glide 28	200	1600
MONTEBELLO—		
St. Helens Pet. Co., Ltd., Monterey 17	250	3750
RINCON—		
Chanslor-Canfield Midway Oil Co., Hobson C-6	50	2985
SANTA FE SPRINGS—		
Bandini Pet. Corp., Off 12	1000	7813
Elmer Oil Co., Jamieson 1	300	7910
Ethyl Oil Co., Butterworth 8	350	7985
General Pet. Corp., No. 143-B	750	7975
No. 145-F	350	8000
No. 211	175	7635
No. 239	1200	6200
George F. Getty, No. 18	...	7950
No. 35	25	8300
No. 45	125	7930
No. 46	50	7950
Richfield Oil Co., Wardman 2	240	8090
Twin Bell Synd., 2-7	175	8015
WEST COYOTE—		
Standard Oil Co., Murphy-Coyote 83	...	2985

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
RICHLAND PARISH—		
United Carbon Co., D. R. Sartor 1, 11-16-6e	¶46	2455
WEBSTER PARISH—		
Standard Oil Co. of La., Creighton B-1, 33-21-10	*	4728

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
EDGERLY—		
Strange Oil Co., Koonce 2	*	3740
HACKBERRY—		
Sunshine Oil Corp., P. Ellender 6	1400	3324
LAKE BARRE—		
The Texas Co., Lake Barre State 3	2050	3870
NAPOLEONVILLE—		
Gulf, Armalise Planting Co. 1, Assumption Parish, Sec. 45-12s-13e	*	6037
STARKS DOME—		
Texas Gulf Sulphur Co., Lutcher-Moore 13	*	1450
SWEET LAKE—		
Pure, Yount-Lee 8	75	4475
VINTON—		
Vinton Pet. Co., Matilda Gray 6	80	2990

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Mills Bennett Prod. Co., Collier 3	1500	5397
Wilburn 3	2800	5239
Humphreys Corp., McLean 1	900	5325
Sun Oil Co., Wilburn Fee 4	1400	5287
J. Wilburn 4	100	5314
BLUE RIDGE—		
Humphreys Corp., West Schenck 1, dd	56	3375
CLAY CREEK—		
Sun Oil Co., Jamar 1	¶2	1190
FANNETT—		
Gulf, E. Thomas et al 13	1350	3911
HUMBLE—		
The Texas Co., Atlantic-Gulf 1	2760	4960
PIERCE JUNCTION—		
Moody Corp., Herman 2, dd	150	4700
Pure, Herman 2	950	4635
PETTUS—		
The Texas Co., Tipps 3	*	4230
RACCOON BEND—		
Humble-Valley, Woodley 4	307	3469
Walton 7-A	123	3448
SOUTH LIBERTY—		
Empire, Groggan 11	600	3560
Navarro Oil Co., Harrison 1, dd	30	3020

SOUTHWEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
DARST CREEK—		
Humble, D. D. Baker 1	1400	2602
Magnolia, T. Dix 7	*	2326
Simms Oil Co., Manford 3	1368	2517
The Texas Co., Knoblock 4-B	3840	2493
Knoblock 5-B	1410	2521
Trinity Drillers, R. Miller 1-D	480	2403
MAVERICK COUNTY—		
Rycade Oil Corp., Chittim 3, Sec. 129	42 & ¶12	6685
WEBB COUNTY—		
Buckner et al, Rosa Benavides 1-A	¶5	1482

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Arkansas Fuel Oil Co., Wilson 1	*	1651
Barnsdall Oil Co., Wilson 12-A	50	1708
P. C. Brashear et al, Richardson 1	*	1260
Consolidated Oil Co., Harmel 2	15	1440
Coombs & Rogers, Kunkel 1	*	1226
F. P. Cullum et al, Falls County 2	115	1139
Cullum & Alexander, Richardson 1	*	1250
Fain-McGaha Oil Corp., Helm 1	*	1511
T. F. Hunter et al, Kunkel 3-A	15	1170
Lawson-Duke et al, Young 2	160	1405
J. A. Minton et al, Kuhr 1	*	1502
Panhandle Ref. Co., Prideaux 18-C	15	655
Prideaux 2-F	25	661
Perkins & Cullum, Richardson 2-B	100	1392
Shell Pet. Corp., Dupriest 2	60	1448
J. R. Williams et al, Kunkel 4	75	1422
BAYLOR COUNTY—		
Barnsdall Oil Co., Portwood-Left 2	120	1407
Consolidated Oil Co. et al, Martin 1	*	1856
Portwood 13	150	1410
Portwood 14	175	1412
F. C. Grebin et al, Isenberg 1	*	1502
CLAY COUNTY—		
R. T. Belcher et al, Landrum 2	*	1794
COOKE COUNTY—		
Fain-McGaha Oil Corp., Goff 1	*	1604
FOARD COUNTY—		
Shell Pet. Corp. et al, Ward 1	*	2175
JACK COUNTY—		
Brazos River O&G Co., Keyser 2	¶8-20	2906
Harper Pet. Co., Ezell 4	40	3207
MONTAGUE COUNTY—		
Barnsdall Oil Co., Cunningham 4	25	914
Bridwell Oil Co., Dennis 1	200	1747
THROCKMORTON COUNTY—		
P. K. Deats et al, Singleton 1	*	950
Kisk Oil Co., Upton County 1	*	835
WICHITA COUNTY—		
Arkansas Fuel Oil Co., K. & K. 27-A	125	1771
C. H. Clark et al, Allingham 1	*	1785
W. H. Hammon et al, Mitchell 1	*	1823
Holcomb & Jones, Obenhaus 1	*	2108
Humble O&R Co., Taylor 22	180	1766
Shappell Oil Co., Waggoner Bros. 2	*	1924
M. Staniforth et al, Crudup 2	120	1816
United Prod. Co., Hodges 12-A	115	1767
WILBARGER COUNTY—		
Atlantic Oil Prod. Co., Waggoner-Sigler 7	200	2684
Bass-Dillard & Sims Oil Co., Waggoner 1-B	*	2206
L. G. Bradstreet Co., Waggoner 1-G	*	2021
Bradstreet & Grisham, Waggoner 1-F	*	1978
Davis Oil Corp., Waggoner 6	350	2677
Waggoner 7	500	2670
Hiland Oil Co., George 2	80	2200
The Texas Co., Waggoner 374	8	1003
Waggoner 376	15	1079
Waggoner Ref. Co., Waggoner 10-P	100	2672
Zenith Oil Co., George 3	300	2196
YOUNG COUNTY—		
Baker & Pardee, Donnell 3	165	3331
O. Bratcher et al, McDonald 1	*	760
Consolidated Oil Co. & Kelleher, Colley 1	*	875
W. R. Duke et al, Foehr 1	*	1105
Fultz & Kay, Kisinger 2	320	2529
W. L. Hawkins et al, Gragg 1	*	804
Howard Pet. Co., Taack 2	*	720
Kleiner et al, Hardy 1	*	706
Panhandle Ref. Co., Prideaux 16-C	5	601
Prideaux 17-C	*	676
Perkins & Cullum, Lemmond 6	110	732
E. R. Riggs et al, Jones 1	*	950
Shaw Oil Corp., Kisinger 1-C	190	2547
E. D. Willis et al, Larimore 1	*	702
W. C. Young et al, Lewis 1	*	1168

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Arcadia Ref. Co., Davis 1	*	
Baker Bros. et al, Gates 1	*	
G. Metcalf et al, Jones 1	*	
Young Bros.-Alexander & Woodley Pet. Co., Butler 4	20	
CALLAHAN COUNTY—		
Ed. W. Bateman et al, Cutbirth 1	*	
Guffey et al, Stewart 1	*	
T. S. Holden et al, Cavanaugh 3-B	60	
Humble O&R Co., Jackson 1-G	10	
Jordan et al, Seale 1	*	
Kleiner et al, Gilliland 1	*	
W. G. Sawyer et al, Snyder 1	*	
COLEMAN COUNTY—		
Atlantic Oil Prod. Co. et al, Sampson 1	*	
Gunn Prod. Co., Kellar 1	*	
Reeves & Riley, Rude 1	4	
EASTLAND COUNTY—		
Arab Gasoline Corp., Brunett 1	*	
Lone Star Gas Co., Calvert 2	¶34	
Morris Bros. et al, Williams 1	*	
ERATH COUNTY—		
Fletcher & Moore, Cage-Mulloy 2	¶134	
HOOD COUNTY—		
Lassater et al, Stewart 1	*	
SHACKELFORD COUNTY—		
Cranfill-Reynolds Co., Matthews 4	*	
Ducker et al, J. B. Mathews 2	*	
Gilman & McMurray, Peter 1	20	
L. D. Hill et al, Walker 1	¶½	
States Oil Corp. & Gulf Proctor-Farmer 1	*	
STEPHENS COUNTY—		
Alsworth et al, Moore 1	¶2½	
Arrowhead Oil Co., Post 5	¶½	
T. P. Coal & Oil Co., J. R. Coody 1	20	

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
GRAY COUNTY—		
Southern Pet. Explo. Co., Noel 1	240	3198
HUTCHINSON COUNTY—		
Midwest Explo. Co., Pitcher 1-B	125	3132
WHEELER COUNTY—		
Lone Star Gas Co., Hoshor 1	¶8	1780
C. A. Linkey 3	¶34	1900

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ECTOR COUNTY—		
Landreth Prod. Corp., University 2-T	700	3687
HOWARD COUNTY—		
Amerada Pet. Corp., Roberts 14	100	2535
Continental Oil Co. & Group One Oil Corp., Overton 3	800	2284
McGinley-Sigler Corp., Hyman 1-B	*	1606
JONES COUNTY—		
W. S. Ware & W. G. Clark, Neuman 2	25	2540
PECOS COUNTY—		
Southern Crude Oil Pur. Co., Tippett 2-A	125	457
Transcontinental & Arkansas Fuel, Mathews 3	40	1531
Gulf Prod. Co., I. G. Yates 27	220	1410
M. A. Smith 23	40	1712
WARD COUNTY—		
E. J. Anderson et al, Townsite 1	20	2183
Harrison & FHE Oil Co., Wristen 1	*	3365

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
LEA COUNTY—		
Empire Gas & Fuel Co., Lindley 2	¶34	3337
Rector Oil Co., King 1	*	4970

Parkersburg, West Virginia.—The Oil & Gas Well Supply Traffic Association will hold its annual meeting at the Hotel Jefferson, St. Louis, Tuesday and Wednesday, April 8 and 9. This association's membership embraces the principal manufacturers of oil well outfits and supplies in the United States, and has as its purpose the promotion, by conference, publicity, and by other means, a more thorough understanding of membership needs from the standpoint of transportation; and to interchange ideas and information concerning traffic and transportation matters.

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

State	Week ending Mar. 22	Previous week	Total this month	Total this Year	This week 1929	This month 1929	1929 Year Total
Arkansas	2	....	7	27	3	14	159
California	5	17	52	173	21	101	1,231
Louisiana	30	30	146	244	12	65	903
Kansas	18	17	76	209	10	71	1,079
Oklahoma	63	44	233	612	60	221	3,578
Texas	160	168	655	1,746	156	565	8,687
Total	278	276	1,169	3,111	262	1,038	15,647

ARKANSAS

OUACHITA COUNTY — McDonald Bros., Camden, Ark., Wilson 2, 700 ft s and 250 ft e sec nw sw 25-15-18.

UNION COUNTY—J. H. Johnston, Tr., El Dorado, Ark., H. C. Tate 1, 300 ft n and 300 ft e sec ne nw, 14-18-14.

CALIFORNIA

ELWOOD—Seaward Oil Co., Ltd., Mahoney 22-4-29. Caroline G. Spalding, Blue Goose 3, 10-4-29.

MIDWAY—Honolulu Consolidated Oil Co's No. 62, 8-32-24.

MT. POSO—General Pet. Corp., Glide 21-5, 11-27-28.

SANTA BARBARA COUNTY—D. A. Hargrave, Law 2, 27-4-27.

KANSAS

CHAUTAQUA COUNTY—Valentine et al, Patterson 1, nw se sw, 2-33-9e. Griffith and Bell, Jeanette 1, cel ne nw, 12-32-10e.

COWLEY COUNTY—Shawver et al, Seal 1, se c ne, 2-30-4e.

ELLIS COUNTY—The Texas Co., Shutts 1, nw ne se 5-12-17w. The Texas Co., Shutts 1, nw c se, 5-12-17w.

GREENWOOD COUNTY — Harwood Oil Co., Good 1, sw nw ne, 36-25-9e. Empire O. & R., Nesbit 1, sw nw nw, 6-24-12e. Walton Oil Co., Nixon 1, sw nw se, 6-24-13e.

LEVENWORTH COUNTY—Forester et al, Yazel 1, cel se se, 18-12-22e.

LINN COUNTY — Ferguson and Hiatt, Campbell 1, ne se sw, 22-21-22e.

LYON COUNTY—Alladin Pet. Co. et al, Ratcliff 1, sw c, 29-20-10e.

McPHERSON COUNTY—Harry Skelly et al, Neufeldt 1, se c ne, 19-21-3w. Dixie Oil Co. et al, Flood 2, ne nw nw, 1-20-2w. McPherson O. & G. Dev. Co. et al, Robinson 1, c se 10-19-2w; Griffin 1, c nw, 14-19-2w.

RENO COUNTY—Independent O. & G. Co. et al, Sophus 1, se c nw, 31-25-4w.

STEVENS COUNTY — Argus Gas Co., Christopher 1, c se, 11-33-39w.

SUMNER COUNTY—Continental Oil Co. et al, Spence 3, c se ne, 27-34-2e.

OKLAHOMA

CARTER COUNTY—Magnolia, Gill 3, se sw ne 23-1s-3w.

CADDO COUNTY—Noble & Olson, Rowe 3, (owdd) sw c nw se ne 36-6-10w; Ramsey Pet. Co., Gregory, se ne sw 31-6-9w.

COAL COUNTY—W. E. McCraw Oil Co., King 1, c sw ne 11-1n-8e (owdd.)

COTTON COUNTY—Shasta Oil Co., Burneaugh 4, ne c se 2-2s-10w.

JEFFERSON COUNTY — Carter Oil Co., Seay 3, se c nw se sw, 34-6s-5w; O. V. Beck, Seay 8, ne c sw se sw 34-6s-5w.

KAY COUNTY — Blankenship Pet. Corp., Hansen 1, sw nw sw 17-27-2e; Lancer et al, Brook 1, c se nw 29-29-1e.

LINCOLN COUNTY—Earl D. Prowant et al, Prowant 1a, nw ne nw 2-16-4e.

LOGAN COUNTY — Blackwell O&G Co., Knecht 1, nw sw se 21-18-4w.

MARSHALL COUNTY — Bilbo Oil Trust Co., Taliaferro 8, sw c ne se 14-5s-5e; Flemming & Kimbrell, Null 3, sw ne nw 24-5s-5e; F. W. Merrick, Null 14, nw c se nw 24-5s-5e.

MUSKOGEE COUNTY—Midwestern O&G Co., Phillips 1, c sw nw 31-12-19e; L. R. Kershaw, Fee 4, sw c nw nw se 15-13-18e; C. F. Ray et al, Foreman 2, ne c se nw se 15-13-8e; H. D. Johnston et al, Lowther 2, ne c nw 23-13-18e; H. L. Jolly, Spaulding 1, se c ne 8-15-18e; D. L. T. Co., Mackey 2, sw c se nw sw 9-15-18e; J. M. Foltz et al, Mackey 1, nw c sw ne sw 9-15-18e; H. L. Jolly, Rentie 1, sw c nw 9-15-18e; Braun Pet. Co., Rolland 2, cnl sw 19-16-16e.

OKFUSKEE COUNTY—F. D. Misner, Robinson 3, nw sw nw 12-10-11e; Atlantic Oil Producing Co., Fife 1, ne c nw 7-10-12e (owdd). Champlin Oil & Ref. Co., Ingram 5; ne sw sw 14-11-11e; F. A. Havel, Lokiwake 1a, ne c nw 26-11-11e.

OKLAHOMA COUNTY—Phillips Pet. Co., Lot 1, ne ne sw 1-11-3w; T. B. Slick et al, Dunivan 1, sw se nw 1-11-3w.

OKMULGEE COUNTY—J. H. Rebold Oil Co., Scott 3, sw nw ne 27-13-11e; LeBean Drilling Co., Bruner 7, c ne sw 23-15-11e; J. H. Rebold Oil Co., Hawkins 1, sw c nw ne 6-15-13e.

OSAGE COUNTY—L. G. Stanley, 9, ne sw se 36-22-8e; Peters Pet. Co., 10, se ne se 22-27-11e.

PAWNEE COUNTY—Martin et al, C tton 6, nw ne sw 6-20-8e; Reece & Fugate, Turner 1a, cwl nw nw (owdd) 18-20-8e.

PAYNE COUNTY—Mulberry Oil Co., Sharum 6, sw nw nw 5-17-4e (owdd). Skelly Oil Co. et al, Ballard 3 (owdd) sw se sw 32-18-4e.

PITTSBURG COUNTY—Midwestern O&G Co., Trekall 1, nw c 14-7-18e.

PONTOTOC COUNTY—Benedum & Trees, Starritt 1, sw se sw 28-5-5e; Coker 3, se nw nw 31-5-5e; Mole 9, nw c ne 31-5-5e.

SEMINOLE COUNTY—Amerada Pet. Corp. et al, Gross 3, se sw nw 24-9-5e; Magnolia, Campbell 5, nw ne se 4-8-7e; Reed 1, sw c 33-8-7e. Superior Oil Co. et al, Robertson 1, nw c 33-8-6e; Reynolds Drilling Co., Decker 1, nw se ne 16-6-6e; Gypsy Oil Co., Griffin 2, sw ne nw 17-6-6e; Wofford Drilling Co. et al, Factor 1, ne c se 18-6-6e; Hilton-Phillips et al, Hyde 2, ne se ne 20-6-6e; Shell Pet. Corp., Severs 1, nw se se 20-6-6e; Twin State Oil Co., Charlie 1, "A," se ne ne 20-6-6e; Burke-Greis Oil Co., Caesar 1, nw sw sw 21-6-6e; Gypsy Oil Co., Hepsey 1, sw se nw 21-6-6e; Harris et al, Burgess 1, nw c sw 21-6-6e; Mid-Continent Pet. Corp., Caesar 1, nw ne sw 21-6-6e; Hilton Phillips et al, Burgess 1, ne c 29-6-6e; Magnolia Pet. Co., Deavers 1, nw ne sw 29-6-6e; Denver Producing & Ref. Co., Stafford 3, ne nw sw 31-5-5e; Gypsy Oil Co., Peters 6, c se ne 23-5-7e; W. B. Pine, Davis 2, se nw nw 17-5-8e.

STEPHENS COUNTY — Pandem Oil Co., Pielsticker 1, se c ne se 5-2s-8w; George Pace et al, Williamson 2, ne c sw nw ne 20-2s-7w.

WAGONER COUNTY—J. McCutcheon et al, Roberts 1, cwl e2 ne sw 9-19-16e.

LOUISIANA

BOSSIER PARISH—Arkansas Fuel Oil Co., Shreveport, Bolinger 4, 38-23n-11w, 330 ft n and 330 ft w of se c of Lot 14. Haynes Drlg. Co., Shreveport, J. G. Martin 1, 26-23n-12w, 1630 ft n and 260 ft w of se c of Sec. H. L. Hunt, Inc., El Dorado, Allen 1, 30-23n-11w, 330 ft n and 330 ft e of sw c of Lot 1. Phillips Pet. Co., Bartlesville, M. R. Bolin 2-A, 30-23n-11w, 700 ft n and 65 ft w of se c nw sw; M. R. Bolin 3, 30-23n-11w, 265 ft s and 700 ft e of nw c se sw; M. R. Bolin 4, 30-23n-11w, 45 ft s and 562 ft w of ne c nw sw; S. H. Bolniger 1, 30-23n-11w, 233 ft n and 390 ft e of sw c Lot 16.

CADDO PARISH—Calatex O. & G. Co., Shreveport, W. C. Argus A-2, 7-16n-16w, 1303.50 ft e of state line and 1324.79 ft s of n line of Sec.

CALCASIEU PARISH — Adams Oil Co., Inc., Vinton, Roderick 1, 21-9s-12w, 500 ft s and 408 ft e of nw c sw.

CAMERON PARISH—Rex Pet Co., Vinton, J. H. Duhon 1, 27-12s-10w, 584 ft n and 50 ft e of sw c sw nw. Sun Oil Co., Beaumont, J. H. Duhon 1, 27-12s-10w, 50 ft s and 467 ft e of nw c sw nw.

IBERVILLE PARISH—Standard Oil Co. of La., Shreveport, Cyrus Case et al 2, 79-8s-8e, 760 ft n and 330 ft w of se c of Sec.

LA FOURCHE PARISH—The Texas Co., Shreveport, LL&E Leesville 1, 27-21s-22e, 1458 ft w and 786 ft s of ne c of Sec.

MOREHOUSE PARISH — Louisiana G&F Co., Shreveport, Crossett 27, 45-21n-5e, n 60° 30 ft e 2079 ft and n 20°30 ft w 594 ft of sw c Lot 3 of Sec 33.

OUACHITA PARISH—Jordan Drilling Co., Monroe, Cole Est. 6, 50-18n-4e, 2292 ft n and 1054 ft w of ne c Sec 49; Cole Est. 7, 50-18n-4e, 265 ft s and 1459 ft w of ne c Sec 49.

RICHLAND PARISH — Arkansas-La. Pipe Line Co., Shreveport, E. A. & F. B. Sartor B-4, 18-16n-6e, 660 ft s and 1320 ft e of nw c sw. Palmer Corp., Shreveport, Rhymes-England Pltg. Co. 6, 3-16n-6e, 1290 ft s and 1080 ft e of nw c of Sec; Rhymes-England Pltg. Co. 7-16n-6e, 660 ft n and 660 ft e sw c of Sec; Rhymes-England Pltg. Co. 8, 33-17n-6e, 1009 ft e and 653 ft s of nw c of Sec; Rhymes-England Pltg. Co. 9, 4-16n-6e, 733 ft n and 1278 ft e of sw c of Sec.

SABINE PARISH—H. S. Autrey, Houston, Long Bell Lbr. Co. 1, 35-8n-14w, 1120 ft s and 1120 ft w of ne c of Sec. F. A. Bartlett, Jr., Pleasant Hill, Logan 1, 27-10n-12w, 200 ft s and 200 ft e of nw c of Sec. Benedum-Tress Oil Co., Pittsburgh, Bowman-Hicks 7, 4-7n-13w, 330 ft s and 330 ft w of ne c nw. Loring Oil Co., Pittsburgh, Bowman-Hicks 8, 33-8n-12w, 330 ft s and 330 ft e of nw c sw se. Philp Bros. Drlg Co., Many, Dow 1, 31-8n-12w, 25 ft s and 25 ft e of se c Obrie and Spanish Sts. Center Lots 1 and 2, Block 18, Zwolle Townsite.

SABINE PARISH — Ruston Drilling Co., Ruston, Bowman-Hicks B-1, 24-7n-14w, 330 ft s and 330 ft e of nw c of Sec. R. B. Whittle, Many, M. L. Corley 1, 31-8n-12w, 25 ft s and 95 ft w of sw cor of Knobel and Armstrong Ave., Lot 18, Block 6, Arkansas Townsite.

UNION PARISH — Greenwood Prod Co., Shreveport, Guinn 1, 32-21n-3e, 1980 ft n and 660 ft w of se c se. Industrial Gas Co., Shreveport, Jenny B-1, 33-21n-4e, 660 ft n and 660 ft e of sw c of Sec.

WEBSTER PARISH—Mt.Vernon O&G Co., Shreveport, Pardee 3, 3-22n-11w, 200 ft s and 1500 ft e of nw c ne sw.

TEXAS

ARCHER COUNTY—J. H. Massie, Wichita Falls, J. T. Richardson, 80, 2, S. Anderson sur, 300 ft w of No. 1. L. T. Burns, Wichita Falls, L. W. McCrory, 4, 1Q, B 112, Amer. Trib. sur, 750 ft from w and 450 ft from s line. Golding & Cochran, Wichita Falls, H. Harmel, 66, 4, W. E. Probert sur, 150 ft from s and e lines, E. B. Lawson, Tulsa, Okla., J. A. Young, 40, 3, 2426, TE&L sur, 300 ft w of No. 2. M. & V. Oil Co. and Mitchell & Fulton, Wichita Falls, H. O. Kunkel, 40, 4, G. W. Kunkel sur, 300 ft n of No. 3. Consolidated Oil Co., Wichita Falls, H. F. Harmel, 100, 2, 2490, TE&L sur, 300 ft s of No. 1. Shappell Oil Co., Wichita Falls, R. O. Prideaux, 200, 16, J. Hand sur, 300 ft w of No. 15. Barnsdall Oil Co., Tulsa, Okla., T. B. Wilson, A, 200, 12, B. Howard sur, 1144 ft from e and 1071 ft from s line. B. A. Benton, Wichita Falls, N. Prideaux, 165, 1, I&GN sur, 150 ft from s and w lines. Douglas Oil Co., Wichita Falls, W. J. McClure, 100, 7, B 13, Crawford sur, 300 ft s on No. 1. J. J. Morgan, Wichita Falls, S. B. Herron, 64, 1, R. Crossman sur, 1050 ft from n and 750 ft from e line.

AUSTIN COUNTY—Empire G. & F. Co., Daisetta, J. T. Boyd, 75, 1, S. F. Austin sur, 300 ft s of center of n line. Humble, Houston,

R. Thompson, 8, W. C. White sur, 6660 ft se of se cor of Wm. Smeather Survey.

BROWN COUNTY — L. A. Austin, Fort Worth, O. H. Nichols, 20, 1, No. 614, M. M. Flores sur, 150 ft from e and 300 ft from s line. Baker Bros., Brownwood, J. J. Cates, 60, 1, S 39, K.C.S.L. sur, 150 ft from n and 750 ft from w line. G. E. Metcalf, Brownwood, T. M. Jones, 33, 1, S 4, T. M. Jones sur, 150 ft from s and w lines.

BEE COUNTY—Morgan Oil Corp., Houston, McKinney, 1, G. R. Ballard sur, 150 ft from e and 450 ft from s line.

BEXAR COUNTY—F. H. Eckert & Son, San Antonio, L. Sandemer, 110, 3, No. 52, 300 ft w of No. 2; P. Dobrowolski, 80, 5, S 4, No. 52, 330 ft sw of No. 4; 6, 300 ft sw of No. 5; 7, 300 ft w of No. 6; 8, 300 ft w of No. 7.

BRAZORIA COUNTY — Rycade Oil Corp., Houston, Rapid City Co., 208, 1, H. Austin sur, 1400 ft from n and 1000 ft from e line.

CALLAHAN COUNTY—Howard Pet. Corp., Tulsa, Okla., I. N. Jackson, 240, 1, S 16, E.T. Ry. sur, 150 ft from n and w lines of ne¼. J. E. Bedingfield, Cross Plains, W. T. Wilson, 160, 1, C.S.S.L. sur, 800 ft from e and 150 ft from s li Blk. 61. Humble, Cisco, Jackson, 320, 2, S 21, E.T. Ry. sur, 150 ft from n and e lines of n½. Gibson & Johnson, 80, 3, S 16, E.T. Ry. sur, 150 ft from s and e lines of sw¼.

COLEMAN COUNTY — Potomac Pet. Co., Brownwood, J. McAdams, 50, 2, H. Frazier sur, 300 ft n of No. 1. Agnew & Sons, Inc., Coleman, W. E. Switzer, 100, 2, No. 279 Wm. Ferris sur, 400 ft w of No. 1. A. C. McGahley, Brownwood, C. E. Shores, 40, 1, S 28, B 27, D. R. Bean sur, 231 ft from n and 200 ft from w line. Eastland Oil Co., Fort Wort, L. Weaver, 80, 2, A. Gabriel sur, 425 ft from n and 980 ft from w line Lot 17. Fox & Adams, Burkett, W. T. Burns, 920, 56, No. 168, A. Wickson sur, 2282 ft from s and 2365 ft from e line. Gunn Prod. Co., Cross Plains, O. Kellar, 35, 1, No. 161, A. White sur, 150 ft from n and e lines.

CARSON COUNTY—Shamrock O. & G. Co., Amarillo, Lincoln, 80, 4, S 3, B 1, ACH&B sur, 660 ft n of No. 2 (Gray County); M. C. Thompson, 80, 1, S 15, B 7, I&GN sur, 330 ft from s and w lines of e½ of ne¼. Phillips Pet. Corp., Bartlesville, Okla., M. B. Pickens, 640, 1, S 31, B 7, I&GN sur, 330 ft from n and 997 ft from e line sec.

COMANCHE COUNTY—Sun Oil Co., Dallas, E. E. Bryson, 2, W. C. Sypert sur, 1500 ft from n and 2200 ft from w line sur.

CALDWELL COUNTY—Cranfill & Reynolds, Dallas, M. L. Strawn, 100, 3, P. Martinez sur, 150 ft from n and e lines.

CHAMBERS COUNTY—Pure Oil Co., Fort Worth, Kirby, 221, 1, C. Tilton sur, 3700 ft from e and 200 ft from s line; W. F. Mayes, 11, E. H. R. Wallis sur, east of No. 9. Sun Oil Co., Dallas, Wilburn, 20, 5, Wm. Hodge usr, 210 ft w of No. 3.

EASTLAND COUNTY—Lone Star Gas Co., Dallas, R. Ward, 1, S 476, S.P. Ry. sur, 660 ft from s and e lines. Humble, Cisco, B. O. Wiley, 554, 1, S 3, T&NO sur, 660 ft from s and e lines. E. C. Yowell, Ranger, W. Y. Gibson, 160, 1, S. Donohoe sur, 750 ft from n and 1050 ft from w line.

ECTOR COUNTY—Gibson & Johnson, Fort Worth, J. Scharbauer, 1, S 4, B B15, School sur, 990 ft from n and 330 ft from e line sec. Skelly Pet. Corp. and Amerada Pet. Corp., Fort Worth, University, A, 160, 2, S 1, B 35, Univ. sur, 330 ft from n and 440 ft from e line sec. Gulf Prod. Co., Fort Worth, A. Kloh, G, 160, 1, S 5, B 44, T&P sur, 440 ft from w and 330 ft from s line sec.

FORT BEND COUNTY—Gulf Prod. Co., Houston, J. M. Moore, 21, M. Smith sur, 300 ft w of No. 20.

GRAY COUNTY — Gulf Prod. Co., Fort Worth, P. A. Worley, A, 160, 5, S 36, B 3, I&GN sur, 990 ft from n and 330 ft from e line sw¼; A. Combs, 160, 1, S 38, B 3, I&GN sur, 330 ft from s and e lines of sec. Panhandle Refg. Co., Wichita Falls, G. H. Saunders, 80, 4, S 3, ACH&B sur, 330 ft from w and 990 ft from s line. Mid-Continent Pet. Corp., Tulsa, Okla., M. L. Lancham, 235, 1, S 1, B B2, H&GN sur, 330 ft from s and w lines. Magnolia, Dallas, Faulkner, 80, 5 S 30, B 2, H&GN sur 330 ft from s and e lines. Phillips Pet. Corp., Bartlesville, Okla., Jas. Fox, 80, 1, S 36, B 3, I&GN sur, 330 ft from n and w lines of w½ of ne¼; 2, 330 ft from s and w lines of w½ of ne¼. Shamrock O. & G. Co., Amarillo, Lincoln, 80, 4, S 3, B 1, ACH&B sur, 660 ft n of No. 2. H. F. Wilcox O. & G. Co., Tulsa, Okla., Combs, 160, 12, S 35, B 3, I&GN sur, 330 ft from s and e lines of se¼; 13, S 37, Blk. 3, I&GN sur, 330 ft from n and e lines of sec. Empire G. & F. Co., Pampa, Shields, 240, 1, S 151, B 3, I&GN sur, 330 ft from s and e lines of n½; Archer, 160, 1B, S 139, B 3, I&GN sur, 330 ft from s and w lines of sec. Humble, Wichita Falls, Combs, 80, 1, S 36, B 3, I&GN sur, 330 ft from s and w lines of n½ of se¼.

GOLIAD COUNTY — Morgan Oil Corp., Houston, C. F. Nichols, 1, 150 ft from s and e lines.

GONZALES COUNTY — United North & South Oil Co., San Antonio, J. A. Kerr, 86, 2, A. K. Clark sur, 750 ft from w and 1050 ft from s line. Mordon Co., San Antonio, J. F. Robinson, 81, 1, L. H. Livergood sur, 300 ft from w and 185 ft from s line.

GUADALUPE COUNTY—J. S. Suttle, San Antonio, A. Baenzinger, Jr., 125, 1, A. O. Mansola sur, 150 ft from s and e lines. Texas Co., Houston, H. Willis, 73, 5, J. C. Darst sur, 150 ft from n and e lines; W. R. Posey, 80, 3, J. R. Robinson sur, 1510 ft from nw and 300 ft from sw line.

HUNT COUNTY—Allen et al, Dallas, J. C. George, 92, 1, E. Tidwell sur, 1250 ft from s and 150 ft from w line.

HARRIS COUNTY—Humble, Houston, B. F. Williams, 11, W. W. Williams sur, 50 ft from n and 550 ft from e line. Sun Oil Co., Beaumont, R. L. Blaffer, 292, 48, R. Dunman sur, ne of No. 44. Sloane Prospecting Co., Houston, J. Ulrich, 165, 1, H. Nash sur, 1535 ft from n and 1450 ft from w line.

HARDIN COUNTY — Rio Bravo Oil Co., Houston, Fee, 158, C82A, J. F. Cotton sur, 200 ft w of No. C79; C83A, 270 ft w of No. C78. Paraffine Oil Co., Houston, Heywood, 35, Jno. Knight sur, 46 ft from e and 205 ft from s line. Ada Belle Oil Co., Batson, Wm. Weiss, 13, 134, B 8, C. Choate sur, 50 ft from s and w lines.

HOWARD COUNTY—Owen Sloan Oil Co., Forsan, D. Roberts, 160, 11, S 136, B 29, W&NW sur, 330 ft from n and 1040 ft from e line se¼. Sun Oil Co., Dallas, H. Phillips, 640, 5, S 14, B 33, T&P sur, 50 ft from s and e lines of nw¼ of se¼.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, McFaddin, 128, P. Humphreys sur, 2607 ft from w and 490 ft from n line.

JACK COUNTY — Tedford Bros., Wichita Falls, Maxey, 20, 2, C. Robbins sur, 300 ft n of No. 1. Buttram Pet. Corp., Oklahoma City, Cullers, 12, S. Chairs sur, 525 ft s of No. 7. Republic Prod. Co., Dallas, W. R. T. Ezell, 60, 4, I. Hughson sur, 600 ft s of No. 3.

LIBERTY COUNTY—Gulf Prod. Co., Houston, E. W. Boyt, 618, 4, A. Allen sur, 3598 ft from e and 3538 ft from s line; 5, 3098 ft from e and 2502 ft from s line.

MARION COUNTY—Davidson & Rudeseal, Shreveport, La., S. Chatten, 469, 1, J. Grayson sur, 1111 Vs from n and 751 Vs from w line.

MONTAGUE COUNTY — G. A. Alpaugh, Cranford, N. J., J. E. Lemons, 70, 2, S. Little sur, 720 ft from w and 420 ft from s line.

ORANGE COUNTY—Gulf Prod. Co., Houston, W. H. Stark, 327, 1, M. E. Hall, No. 1, 278 ft from e and 50 ft from s line.

PECOS COUNTY—C. S. Messinger et al, Royalty, Byrne, 37, 1, S 54, B 10, H&GN sur, 2130 ft from nw and 1170 ft from sw line sec. Cromwell, Tanner & Ellis, San Angelo, University, 80, 1, S 16, B 16, 1320 ft from e and 1980 ft from s line sec. Continental Oil Co., Wichita Falls, I. G. Yates, 320, S44, S 60, B 1, I&GN sur, 2458 ft from w and 598 ft from s line. Gulf, Fort Worth, I. G. Yates, 29, R.C.S.L. sur, 710 ft n of No. 24. Shell, Dallas, Bower, 40, 1, S 31, B 16, S.U.L. sur, 330 ft from s and w lines sw¼ of ne¼. Rector Oil Co., Midland, I. J. Young, 333, 1, S 4, B 3, H&TC sur, 330 ft from n and 1650 ft from w line sec. McMan O. & G. Co., Tulsa, Okla., I. G. Yates, 697, 18, S 34½, B 194, GC&SF sur, 2059 ft from w and 275 ft from n line sec.

PANOLA COUNTY — Bahan & Bahan, Shreveport, La., T. Hill, 59, 1, E. F. Mitcheson sur, 2400 ft from w and 150 ft from s line sur.

PALO PINTO COUNTY—M. L. Dalton, Mineral Wells, R. S. Dalton, 60, 1, S. F. Harding sur, 150 ft from e and 450 ft from s line sur. H. J. Wickens et al, Strawn, A. P. Wickens, 162, 1, B 59, B.C.S.L. sur, 3320 ft from n and 330 ft from w line; V. M. Jones, 106, 1, B 72, B.C.S.L. sur, 330 ft from s and lines.

REFUGIO COUNTY—Saxet Oil Co., Houston, L. H. Johnson, 7½, 1, B 11, Refugio, I. H. Wheatcroft, San Antonio, Refugio, 1, B fugio sur, 50 ft w of center of e line of Blk. Sun Oil Co., Dallas, L. H. Johnson, 23, 2, B Refugio sur, 151 ft from n and w lines.

SHACKLEFORD COUNTY—King Royalty Co., Wichita Falls, I. N. Brewster, 40, 1, S 3 150 ft from s and w lines. Hart & Gist Pr Co., Inc., Albany, J. A. Clark, 40, 3, S 2, Bl Asy. sur, 150 ft from n and w lines. W. Ramming, Wichita Falls, J. P. Clarke, 40, S 3, Blind Asy. sur, 150 ft from w and 450 from s line sw¼ nw¼.

STEPHENS COUNTY—Lone Star Gas Co Dallas, S. M. Henry, 80, 4, S 53, B 7, T&P sur 370 ft from s and 330 ft from w line. W. Rhodes, Breckenridge, R. W. West, 54, 1, 141 TE&L sur, 270 ft from w and 150 ft from line. Harbert Oil Co., Fort Worth, J. E. Langford, 50, 1, S 15, B 6, T&P sur, 950 ft from and 575 ft from w line. G. S. Harcourt, Breckenridge, R. F. Brown, 84, 1, B. F. Wood sur, 350 ft from w and 650 ft from s line.

SMITH COUNTY — E. L. Chapman, Fort Worth, J. M. Hamman, 62, 1, Jas. Reed sur, 150 ft from s and w lines.

THROCKMORTON COUNTY—C & B Oil Co., Breckenridge, J. E. Hughes, A, 40, 11, 902 TE&L sur, 150 ft from n and e lines of w½ of se¼; N. L. B. Davis, 40, 6, 901, TE&L sur, 450 ft from n and w lines of sec; E. Horton, 160, 2, 935, TE&L sur, 450 ft from n and e lines of w½; J. E. Hughes, 40, 10A, 902, TE&L sur, 150 ft from n and w lines of se¼; 9A, 150 ft from w and 450 ft from n line se¼; 8A, 150 ft from w and 1050 ft from s line se¼; 7A, 150 ft from w and 750 ft from s line se¼; J. T. Odell, 40, 9B, 696, TE&L sur, 450 ft from w and 750 ft from n lien sec; N. L. B. Davis, 40, 5, 901, TE&L sur, 450 ft from w and 750 ft from n line sec. Beatty & Miller, Breckenridge, J. C. Mathas, 30, 1, 2235, TE&L sur, sw corner Continental Oil Co., Wichita Falls, S. J. Walker, 80, 12, 907, TE&L sur, 1402 ft fro mn and 1715 ft from e line. C. C. Williams, Jean, J. L. Still, 80, 1, 936, TE&L sur, 150 ft from s and e lines of nw¼.

TAYLOR COUNTY — Mid-Continent Pet. Corp., Tulsa, Okla., A. L. Lindsey, 90, 1, B 22, GCSA sur, 249 ft from w and 273 ft from s line.

TOM GREEN COUNTY — Phillips Pet. Corp., Bartlesville, Okla., B. F. Jennings, 1, S 77, Jas. Webb sur, 827 ft from n and 646 ft from e line.

VAN ZANDT COUNTY — Pure Oil Co., Fort Worth, R. H. Peters, 70, 1, N.C.S.L. sur, 200 ft from e and 754 ft from s line.

WICHITA COUNTY — King Royalty Co., Wichita Falls, T. L. Burnett, 160, 11, S 9, HT&B sur, 300 ft s of No. 10.

WALKER COUNTY—Texas Co., Houston, Delta Land Co., 1, Wm. Higgins sur, 456 ft from e and 30 ft n of road.

WILLIAMSON COUNTY — Hunt & McKamey, Georgetown, L. Wileman, 103 1, W. Stubblefield sur, 300 ft from n and 800 ft from w line. R. A. Westbrook, Fort Worth, J. C. Abbott, 10, 1, S. Miller sur, 150 ft from n and 450 ft from e line; 2, 300 ft w of No. 1; 3, 300 ft e of No. 1. M. S. Bartlett, Thorndale, R. E. Thomas, 17, 1, H. Owens sur, 450 ft from n and 180 ft from e line. Ertel Oil Properties, Inc., Taylor, J. F. McConnell, 10, 1, S. Miller sur, 144 ft from n and 285 ft from w line.

WARD COUNTY — Otto Kirkham, Grand Falls, E. S. Boogher, 6, 1, S 11, B 5, H&TC sur, 150 ft from s and w lines.

WALLER COUNTY—Kirby Pet. Co., Houston, J. Davis, 25, 2, Wm. Cooper sur, 300 ft s of No. 1.

WEBB COUNTY—South Texas Prod. Co. and Allied Gas Co., Laredo, P. Leal, 325, 1, No. 667, 150 ft e of center of w line.

WHEELER COUNTY—Wischkaemper Bros., Shamrock, J. W. Curry, 40, 3, S 53, B 23, H&GN sur, 660 ft from n and e lines of sw¼. Fain-McGaha Oil Corp. and Murchison Oil Co., Wichita Falls, I. Close, 8, S 78, B 23, H&GN sur, 675 ft from e and 610 ft from n line se¼.

YOUNG COUNTY—McDonald & Campbell, Dallas, J. D. Carpenter, 40, 2, 164, TE&L sur, 150 ft from s and e lines of n& of sw¼. Willis & Turrell, Jean, S. L. Ellis, 80, 1, 2244, TE&L sur, 150 ft from n and w lines. King Royalty Co. and Goldsmith, Wichita Falls, H. O. Kunkel, 40, 10, G. W. Stell sur, 150 ft from n and e lines. Howard Pet. Corp., Tulsa, Taack,

WILDCATS FROM ALL SECTIONS

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BORDEN COUNTY—		
W. A. Moncrief & Humble O&R Co., Munger 1	*	3517
GARZA COUNTY—		
H. C. Cate & Pandem Oil Corp., Stoker 1	*	3018
IRION COUNTY—		
Baker & Hodges, Tankersley 1	*	1450
PECOS COUNTY—		
Cranfill-Reynolds Co., Masterson 1-B	*	1880

ANDREWS COUNTY—Deep Rock Oil Co. et al's A. R. King 1, dr 1380 ft; B. L. King 1, dr 970 ft; W. J. Mathis 1, dr 975 ft. Fuhrman Pet. Corp.'s W. T. Ford 1, dr 520 ft. Humble & Penn Oil Co.'s M. H. Wilson 1, dk.

BORDEN COUNTY—Phillips Pet. Co. & C. B. Shaffer's Good 1, dr 815 ft.

BREWSTER COUNTY—E. L. Chapman et al's Skinner 2, elev 4240 ft, sd hfw 1250 ft. Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, dr shale and lime 2090 ft.

COKE COUNTY—Arkansas Fuel Oil Co. & Dixie Oil Co.'s W. A. Stepp 1, sp. Cates & Fitzhugh's Mims 1, machine.

CONCHO COUNTY—Jas. Duffy & Watchorn O&G Co.'s L. Noyes 1, elev 1965 ft, lcn.

CRANE COUNTY—Cranfill Bros. Oil Co.'s J. B. Tumm 1, rig.

CROCKETT COUNTY — California Co.'s Shannon 2, elev 2667 ft, rig. Empire's Shannon 1, co 2660 ft. W. E. Goldman & E. H. Moore's P. Perner 1, dk. Magnolia Pet. Co.'s Hoover 1, elev 2412 ft, top salt 660 ft, top

40, 1, 263, TE&L sur, 300 ft n of No. 2; 2, 450 ft from n and 150 ft from w line e½ sw¼. Morris, Smithwick & Sunn, Graham, S. A. Dayle, 9, 1, 184, TE&L sur, 1100 ft from n and 600 ft from e line. Panhandle Refg. Co., Wichita Falls, J. M. Jameson, 40, 1, 242, TE&L sur, 150 ft from s and w lines. S. W. R. Duke, Wichita Falls, M. Foehr, 80, 1, 178, TE&L sur, 150 ft from n and e lines of se¼ of nw¼. W. R. Cooper et al, Olney, J. R. Wilson, 55, 1, 162, TE&L sur, 1416 ft from e and 150 ft from s line sec. Junker & Perkins, Olney, E. A. Hausler, 50, 1, S 1, J. Poitevent sur, 150 ft from s and w lines. Mix & Dale, Wichita Falls, J. B. Daniel, 40, 1, 162, TE&L sur, 150 ft from s and w lines. W. C. Young, Archer City, H. N. Lewis, 40, 1, 187, TE&L sur, 150 ft from s and w lines. Wooten & Reed et al, Graham, A. C. Casey, 40, 1B, 1486, TE&L sur, 1427 ft from n and 150 ft from w line sec. Christie Bros., Wichita Falls, J. Kisinger, A, 20, 3, Jno. Conner sur, 375 ft e of No. 1. Hamilton & Anderson, Olney, J. D. Carpenter, 40, 1, 237, TE&L sur, 150 ft from s and e lines. McDonald & Campbell, Dallas, J. D. Carpenter, 40, 2, 164, TE&L sur, 150 ft from s and e lines of n½ of sw¼. C. J. Kleiner, Cisco, N. L. Hardy, 120, 1, 260, TE&L sur, 155 ft from n and 1601 ft from e line. Carl Wainwright, Olney, M. A. Garvey, 40, 1, 290, TE&L sur, 150 ft from e and 960 ft from n line. Bolin & Lindsay, Graham, D. L. Wolf, 30, 2, 165, TE&L sur, 300 ft e of No. 1. Gibson & Johnson, Abilene, M. E. Hall, 80, 1, 167, TE&L sur, 150 ft from s and e lines. S. W. Brammett et al, Throckmorton, J. W. Davis, 256, 1, 754, TE&L sur, 150 ft from n and 1650 ft from w line. E. H. Sharp, Olney, A. M. Kunkel, 80, 1, 2446, TE&L sur, 150 ft from s and e lines of nw¼. Brihill Oil Corp., Fort Worth, H. F. Peters, 20, 1, H. F. Peters sur, 150 ft from s and w lines.

ZAPATA COUNTY — Moore & Moore, Laredo, A. G. Flores, 40, 1, B 99, C. Redondo sur, 330 ft from n and e lines. O. W. Killam, Laredo, R. B. Cuellar, 80, 21, J. M. Pereda sur, 450 ft from ne and 150 ft from se line. A. L. Edington, Laredo, I. G. Trevino, 40, 2, S 412, B 26, 490 ft from e and 150 ft from s line. W. R. Shankle, Laredo, E. Guteirrez, 200, 1, No. 4, Comitas sur, 150 ft from s and e lines. B. F. Nixon, Oklahoma City, A. Gutierrez, 40, 1, No. 10, B 8, Lot 5, Borrego sur, 332 ft from e and 170 ft from s line.

lime 1890 ft, dr 2230 ft. Trans-Texas Oil Co.'s Shannon 2, rig.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet or gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

CULBERSON COUNTY—Grisham-Hunter Corp.'s W. D. Garren 1, sp; Seay 3, elev 3634 ft, top salt 2730 ft, top Delaware 2934 ft, dr in water sand 3225-40 ft. Hickey et al's Finley 1, dr 2870 ft. W. L. Kornrumpf et al's Garren 1, sp and sd.

ECTOR COUNTY—Cosden Oil Co.'s Kloh 1, top salt 1275 ft, dr 1580 ft; University 2-A, dr 800 ft; University 2-B, fsh 830 ft. C. P. Davis et al's Hendrick 1, fsh 1088 ft. Gibson-Johnson & Eastland Oil Co.'s Scharbauer 1, dr 760 ft. Gulf Prod. Co.'s Kloh 1-G, dr 850 ft; University 1, elev 2899 ft, top salt 925 ft, dr 2880 ft; University 2, dk; University 1-A, elev 2884 ft, top salt 1175 ft, dr 2700 ft; University 2, dk. Humble-Penn-Atlantic's Kloh 2-D, elev 2921 ft, top salt 1050 ft, cem cas 3383 ft; Kloh 3-D, elev 2916 ft, top salt 1055 ft, dr 2845 ft; Kloh 4-D, elev 2905 ft, top salt 1060 ft, dr 2280 ft; Kloh 5-D, dr 710 ft'; Kloh 6-D, top salt 1075 ft, dr 1210 ft; Kloh 7-D, dr 330 ft; R. L. York 2, elev 2902 ft, top salt 1115 ft, top lime 3130 ft, dr plug 3350 ft ;York 3, elev 2898 ft, top salt 1190 ft, cem cas 3410 ft; York 4, top salt 1175 ft, dr 1860 ft; York 5, top salt 1105 ft, dr 2230 ft; York 6, elev 2889 ft, top salt 1155 ft, cem cas 2347 ft. Independent O&G Co. & Tidal Oil Co.'s Eidson 1, dr 500 ft. Landreth Prod. Corp.'s University 2-S, elev 2897 ft, top salt 1210 ft, dr 3140 ft. Penn Oil Co. & Devonian Oil Co.'s Goodman 1, lcn. Shell Pet. Corp.'s E. J. Jones 1, dr 1070 ft. Simms Oil Co. & M. H. Reed's University 1, top salt 1070 ft, dr 1135 ft. Skelly Oil Co. & Amerada's University 1, dr 910 ft; University 2, rig. Texas Co. & Cosden Oil Co.'s Connell 7, dk. TP Coal & Oil Co.'s B. W. McKenzie 1, sp. H. F. Wurtz et al's E. A. Ibbetson 1, sp and sd.

EDWARDS COUNTY—Phillips Pet. Co.'s Holman 2, sp.

FISHER COUNTY—Cranfill-Reynolds Co.'s Johnson 1, dr 2280 ft; Willingham 2, dr 260 ft.

GAINES COUNTY—Humble O&R Co.'s C. B. Carswell 1, materials.

GLASSCOCK COUNTY—California Co.'s J. W. Baker 1, elev 2634 ft, dr 800 ft; Jones 1, dk. Continental Oil Co.'s Miller 1, sd 1500 ft. FHE Oil Co.'s Cox 1, sd 2060 ft. Ed. Timberlake et al's Meek 1, elev 2792 ft, ur 2166 ft. World Oil Co.'s McDowell 3-C, dk.

TOM GREEN COUNTY—Cosden Oil Co.'s Wm. Anson 1, lcn. Phillips Pet. Co. & Sun Oil Co.'s A. Gulden 1, sp.

HOWARD COUNTY—Meriwether Oil Co.'s Smith 1, elev 2590 ft, ur 2275 ft.

HUDSPETH COUNTY — California Co.'s University 1, elev 5109 ft, dr grey lime 4025 ft.

IRION COUNTY—Banner Oil Co.'s Nutt 2, lcn. Brown & Fox's Tankersley 2, co 1100 ft. Crawford et al's Nutt 1, sd 1105 ft. Cromwell et al's Nutt 2, dr 995 ft. Kingwood Oil Co. et al's Sugg 1, elev 2334 ft, sd after 4 shots, td 7818 ft. P. H. Williams et al's Ashe Bros. 1, elev 2726 ft, top lime 1712 ft, dr 8105 ft.

JONES COUNTY—Atkinson & Sandefer's Byron 1, dr 2110 ft. Mid-Tex O&G Co.'s King 1, sd 1880 ft. Phillips Pet. Co.'s Coates 1, dr 1650 ft.

LOVING COUNTY—California Co.'s Allen 1, dr 675 ft; Reagan-McElvain 1, dr 360 ft. Hadlock et al's Russell 2-A, rig. L. E. Lockhart et al's Wheat-Ramsey 1, sp. Lockhart & Co.'s Bower-Wells 3,top salt 763 ft, dr 1060 ft; Hubbard 5, elev 2695 ft, dr 2465 ft; Lepp 2, sp and sd; Wheat 1-H, sd hfw 5078 ft.

MENARD COUNTY — Cromwell & James Duffy's Winslow 2, elev 2143 ft, dr 2530 ft. L. G. Priest et al's J. P. Sorrell 1, dr 1310 ft.

MIDLAND COUNTY—Pure Oil Co.'s J. E. Hutt 1, sr 276 ft.

MITCHELL COUNTY—Gibson & Johnson's Scott 3, elev 2091 ft, top salt 739 ft, sd 1355 ft. Texas & Wheeler's Radford 1, elev 2223 ft, dr 4920 ft.

PECOS COUNTY—Angelo Petroleum, Inc.'s McKenzie 1, top salt 908 ft, dr 1500 ft. Atlantic Oil Prod. Co.'s Shearer 1, elev 2423 ft, pb from 1497 ft to test oil pay 1438-1459 ft. California Co.'s Jasper 1, machine. E. L. Chapman et al's Streety 1, elev 2653 ft, fsh 1905 ft. Cromwell-Tanner & Ellis' University 1, machine. Crosby Prod. & Roy. Co.'s Cordova 1, elev 2320 ft, top salt 725 ft, dr gray lime 1750 ft. Dixie Oil Co.'s McKenzie 1, elev 3172 ft, top salt 1410 ft, dr 2745 ft. Fisher & Lowrie's Webb 1, lcn. Galt-Brown Co.'s Thompson 1, top salt 730 ft, dr 815 ft. Hayes et al's A. N. Lea 1, lcn. Hussman Oil Co.'s Estes 1, trace oil 1500 ft, ur cas 1560 ft. Independent O&G Co. & Buell-Hagan's Jasper 1, machine. Mauch & Krogen's Holmes 1, sd hfw 2224 ft. Messenger et al's Byrne 1, sp and sd. J. R. Miller et al's Bennett 1, sp and sd. R. E. Moore et al's Arnold 1, elev 3860 ft, sd 1850 ft. Perren et al's Eaton 2, sp and sd. Phillips Pet. Co.'s Shearer 1, sp. R. W. Porpus et al's State 1, lcn. Rector Oil Co.'s Young 1, sd 450 ft. Sides & Cloyd's Blackstone-Slaughter 1, sd 802 ft. Southern Crude Oil Pur. Co.'s Eaton 1, dr 555 ft; McKenzie 1, elev 2800 ft, top salt 975 ft, top lime 1970 ft, pb from hfw 2312 ft to 1650 ft and testing gas flow. Stine & Griffith's McKenzie 1, top salt 1330 ft, elev 3156 ft, top lime 2540 ft, dr 2850 ft. The Texas Co.'s T. H. Wright 1, dr 450 ft. Trees Oil Co.'s Trees 3, dr salt 1830 ft. Transcontinental Oil Co.'s University 1, elev 2552 ft, top lime 1035 ft, bad hole 4910 ft; White-Baker 2, elev 2695 ft, top salt 875 ft, fsh with hfw 1715 ft. W. F. Walsh et al's Scharbauer 1, machine. World Oil Co.'s University 1-C, elev 2614 ft, dr hfw 2095 ft.

REAGAN COUNTY—Big Lake Oil Co.'s University 179 (deep test), dr 2700 ft; University 1-C, co with rotary rig 8430 ft; University 2-C, flowing 650 bbls 560 gravity oil and 12,878,000 ft gas 8232 ft; University 3-C, trying to drill in shale and calsite 8540 ft; University 4-C, flowing 125 bbls 58 gravity oil and 5¼ million ft gas 8220 ft. Group One Oil Corp. & Conoco's University 2-B, dr shale 6545 ft; University 3-B, dr sandy shale 4980 ft. A. M. Hagan & J. W. Emch's Sawyer 1, rig.

REEVES COUNTY—Hansford et al's Williams 1, sd 380 ft. Slack & Fink's Brooks-Huling 1, elev 3116 ft, sd with oil and water in hole 1820-27 ft.

RUNNELS COUNTY—Geo. W. Boyce & Lamar's Lange 1, elev 1844 ft, sd hfw 2504 ft. Gibson & Johnson's Johnson 1, dr 1485 ft.

SCHLEICHER COUNTY—Delmar Oil Co.'s O'Harrow 1, ur 2635 ft. Phillips Pet. Co.'s J. A. Whitten 1, elev 2333 ft, dr 6070 ft. Munger-Wilson Oil Co.'s Page 1, elev 2270 ft, ur 2385 ft. Texas & Grant's C. C. Allison 1, lcn.

SCURRY COUNTY—J. G. Armand & Camp Springs O&R Co.'s Quinn 1-A, elev 2316 ft, sd 4015 ft. Pender O&G Co.'s Davis 1, co 4330 ft. E. L. Smith & Magnolia's Mooar 1, dr 4060 ft. Transcontinental & Vacuum Oil Co.'s Peckham 1, elev 2155 ft, fsh 525 ft.

TAYLOR COUNTY — Condor Pet. Co.'s Stoker 1, dr 1600 ft. A. H. Gibson et al's M. E. Cody 1, dr 1070 ft. Owen-Sloan Co. & Gibson-Johnson's Bingham 1, sd 700 ft. J. B. Jameson et al's Webb 1, elev 1905 ft, dr 5625 ft. Mid-Continent Pet. Corp.'s Lindsey 1, rig.

TERRELL COUNTY—Big Bend Oil Corp. & E. A. Book's Bassett 1, elev 2396 ft, dr 1445 ft. Transcontinental Oil Co.'s Good 1, elev 2405 ft, dr 2830 ft. Keck-Pecos Oil Trust's Hamilton 1, sd 3150 ft.

TERRY COUNTY — Penn Oil Co. Unit Plan's P. Carlisle 1, dr 2000 ft.

UPTON COUNTY—TP Coal & Oil Co.'s

E. V. Belcher 1, elev 2684 ft, top salt 1310 ft, dr lime 3590 ft.

VAL VERDE COUNTY—A. Blume et al's J. P. Yoas 1, lcn. Phantom O.l Co.'s Ingram 1, sd 2551 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Dakan 1, co 2210 ft. C. C. Derr & Atlantic's Costley-Door 1-A, elev 2493 ft, top salt 1990 ft, top lime 2200 ft, dr 2580 ft. Gulf Prod. Co.'s Hutchings 3, elev 2659 ft, top salt 1035 ft, pb from 3095 to 3052 ft; Hutchings 4, dr 180 ft; O'Brien 8, dr 595 ft. R. F. Owen et al's H. W. Johnson 1, sp and sd. Penn Oil Co. & Atlantic's Bennett 2, elev 2579 ft, top salt 2085 ft, top lime 2260 ft, pb from 2630 to 2625 ft and shot twice, co and swab 20 bbls oil daily. Sid Richardson et al's O'Brien 1, top salt 1230 ft, cem cas in lime 2463 ft. Shell Pet. Corp.'s Sloan-Owen 1, top salt 765 ft, swabbing 35 bbls oil and some water, dr lime 4270 ft. Shipley Oil Corp.'s Hayzlett 4, dr 2800 ft. J. E. Smith et al's Clements 1, sd 560 ft. Sturm & Paine's Cummins 1, elev 2443 ft, top salt 780 ft, sd 2350 ft. Southern Crude Oil Pur. Co.'s Hill & Hill 1, elev 2613 ft, top salt 2223 ft, dr plug 2440 ft. Sun Oil Co.'s Sealy 1, elev 2680 ft, top rustler lime 2074 ft, sd 2555 ft. Tex-Oil Production Co.'s Redman 1-A, elev 2717 ft, top salt 1290 to 4133 ft, dr anhydrite-lime 4470 ft.

WINKLER COUNTY—Sun Oil Co.'s Sealy 2, elev 2713 ft, top salt 2995 ft, top lime 3110 ft, run 5 3/16-in cas 3275 ft.

CENTRAL EAST TEXAS

Completion

Company, Well and Location	Initial Production Bbls.	Depth
SMITH COUNTY—		
Deep Rock Oil Co. et al, Bowdoin 1	*	3750

ANDERSON COUNTY—Humble O&R Co.'s W. Johnson 1, Jas. Hall sur, Pecan Gap chalk 2908 to 3025 ft, dr 3160 ft. Magnolia's E. F. Williams 2, Wm. Bledsoe sur, top Pecan Gap chalk 3880 ft, dr 4570 ft. W. H. Roeser & Roeser-Pendleton, Inc.'s W. L. Moody 1, Jas. Welch sur, elev 349 ft, Austin chalk 4067 to 4422 ft, dr 4670 ft. Sun Oil Co.'s Bowers-Maier 1, E. G. Meyers sur, elev 306 ft, crooked hole 998 ft.

CAMP COUNTY—J. C. Rogers et al's Emfield 1, dr 2000 ft.

DELTA COUNTY—W. H. Goodnight & Bob Baker's Simms-Smith 1, lcn. Geo. Kean & J. B. Evans' Smith 1, J. B. Anderson sur, elev 506 ft, sd 1830 ft.

ELLIS COUNTY—G. C. Foster & S. C. Richardson's Moise-Cerf 1, La Pena sur, elev 440 ft, top Austin chalk 531 ft, dr 1410 ft.

FANNIN COUNTY—Ed. V. Parsons et al's H. E. Morgan 1, J. E. English sur, dr 1855 ft.

FRANKLIN COUNTY—Harper & Byers' H. A. Laws 1, E. S. Rogers sur, dk.

FREESTONE COUNTY—Cranfill-Reynolds Co.'s W. E. Bonner 1, S. T. Ballour sur, dr 1410 ft. Haley & Young's G. W. Pierce-Worthy 1, J. L. Chavert sur, sp and sd. O. W. Killam-Phillips et al's R. H. Edwards 1, A. Sanchez sur, elev 402 ft, rig. C. F. Lytle et al's Holt 1, D. Avant sur, top Austin chalk 3906 ft, dr 4600 ft. Penn Oil Co.-Dixie Oil Co. & J. R. Black's B. M. Burgher 1, C. Chamar sur, dr 2552 ft.

HENDERSON COUNTY—H. B. Ashburn et al's T. E. Berry 1, Arron York sur, rig. E. L. Chapman et al's Cade 1, Simon Weiss sur, dr 2083 ft. Cranfill-Reynolds Co. & Louisiana Oil Ref. Corp.'s J. W. Broome 1, Samuel Chears sur, top Pecan Gap chalk 2695 to 2890 ft, dr chalk 3300 ft. Shell Pet. Corp.'s Stevens 1, A. D. Owens sur, skidding dk account title trouble.

HOPKINS COUNTY — L. H. Wentz Oil Corp.'s S. Millhollen 1, J. Simpson sur, dk.

HUNT COUNTY—D. Hager et al's J. C. George 1, E. Tidwell sur, rig.

LAMAR COUNTY—B. L. Laubenheim et al's Johnson 1, Wm. Driggers sur, elev 667 ft, sd 3090 ft.

LIMESTONE COUNTY—Haley & Heeman's D. Wilkes 1, John Breeding sur, sd 690 ft.

MORRIS COUNTY—Geo. McCamey et al's P. M. Staggers 1, G. Forbes sur, materials.

RAINS COUNTY—Owen-Sloan Co. & D. H. Byrd's J. D. Hill 1, Friend-McMahan sur, dk.

RUSK COUNTY—E. M. Joiner et al's Bradford 3, sd 2530 ft. Magnolia's Duran-Wylie 1, Aquilla Norris sur, elev 431 ft, dr chalk 2510 ft.

SMITH COUNTY—East Texas Pet. Corp.'s Peoples Bank 1, John McFadden sur, elev 465 ft, Austin chalk 3008 to 3190 ft, dr Eagleford shale 3205 ft. Owen-Sloan Co. & R. H. Davis' J. H. Starnes 1, J. W. Allen sur, sd 1322 ft. O. M. Rector et al's M. Dozier 1, Mathew Maise sur, lcn. E. L. Chapman & A. M. Sutton et al's J. M. Hammond 1, Jas. Reed sur, dr 1440 ft.

TITUS COUNTY — Wainright-West O.ls, Ltd., (W. L. Murrell & Geo. M. Anderson's) Walcott & Lott 1, D. M. Smith sur, dr shale 1772 ft.

VAN ZANDT COUNTY—Central Oil Co. et al's S. J. West 1, A. C. Walters sur, elev 564 ft, dr 3770 ft. Cranfill-Reynolds Co.'s J. H. Edwards 1, J. Burleson sur, materials. Warren T. Daniels et al's Fannie Cumby 1, John Wright sur, rig. Dennis Oil Corp. et al's C. W. Morris 1, C. L. Morrison sur, dr 1835 ft. Red Indian Oil Co. (Manley-Sprinkle & Evans') Dr. B. C. Andrews 1, Margaret Neal sur, sp and sd. Hartt Pet. Co.'s L. H. Cox 1, A. C. Nugent sur, dk. Roy Jenkins et al's J. H. Cox 1, S. P. Ry. sur, lcn. Pandem Oil Corp.'s R. L. Brin & W. W. Gibbard 1, Ray Sunigas sur, sp and sd. Arthur H. Ray & Ward Powell's A. J. Berry 1, Nacogdoches County sur, top Pecan Gap 2591 ft, dr chalk 2640 ft. Texas Chief Oil & Royalty Co.'s J. P. Foster 1, F. Montgomery sur, sp and sd. Van Zandt Oil & Dev. Co.'s Sharp-Robinson 1, J. B. Ybarbo sur, top Pecan Gap chalk 2764 ft, dr 2800 ft.

VAN ZANDT COUNTY (Van Field)—Central Oil Co.'s Peters 1, dk. Cranfill-Reynolds Co.'s Coker-Ledbetter 1, rig. Humble O&R Co.'s W. Freeman 1, dr 1660 ft. Pure Oil Co.'s Cannon 1, dk; Clark & Hudson 1, dk; A. D. Clark 1, flowing 330 bbls oil 2880 ft; R. C. Crim 1, re-set liner to test 3082 ft; Ellison 1, dr 1490 ft; D. R. Howell 1, reaming 2885 ft; Jarman 2, cem cas 2727 ft; Jarman 3 and 4, dks; Leonard 1, lcn; Thompson 2, coring 2548 ft; Thompson 3, lcn; A. R. Tunnell 1, set liner 2898 ft; E. B. Tunnell 1-A and 2-A, dks; R. L. Wells 1, dr 1925 ft; Wells 2, lcn. Pure & Hill & Hill's Peters 1, dr 1650 ft. Shell Pet. Corp.'s B. M. Fowler 1, testing 2505 ft; Fowler 2, rig; Tunnell 3, dr 2902 ft. The Texas Co.'s R. A. Tunnell 1, coring 2812 ft; R. V. White 1, re-set liner 2990 ft.

WOOD COUNTY—Big Indian Oil & Dev. Co. & Tidal Oil Co.'s R. J. King 1, W. M. Barnhill sur, sp. Gulf Prod. Co.'s N. E. Carver 1, Wm. Kern sur, top Pecan Gap chalk 2870 ft, reaming 3893 ft. Westexas Oil & Royalty Corp. & Owen-Sloan Co.'s Negro Orphanage 1, Chas. E. Rivers sur, elev 361 ft, dr 2360 ft.

EAST TEXAS

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1920 ft.

HARRISON COUNTY — Shell Rock Pet. Co.'s Daugherty 1, W. W. Burris sur, sp, set 10-in cas 185 ft, sd 280 ft.

MARION COUNTY—A. A. Trammell, Tr.'s Hussey 1, Lockhart sur, dk. Davidson et al's Chatten 1, Grayson sur, set 10-in cas 10? ft, dr 1320 ft.

MORRIS COUNTY — Tucker & Fullwood's Henderson 1, J. C. Riddle sur, dk.

RED RIVER COUNTY—E. L. Chapman's Norris & Guest 1, Larkin sur, dk. D. M. Buffington's Hoosier 1, Hughart sur, sd 2365 ft. Shad Harper's Garland 1, Wagley sur, sd 1862 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd 2182 ft.

SHELBY COUNTY—Chaparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3304 ft. Benedum & Trees' McMann 1, Nancy Beattie sur, set 9-in cas 2762 ft, dr 3110 ft.

TITUS COUNTY—Canadian Oil Co.'s Walcott 1, D. N. Smith sur, sp setting 10-in cas depth not given.

SOUTHWEST TEXAS

ATASCOSA COUNTY—A. T. Brock's Mrs. J. W. Fowler 1, sd at 1685 ft, report excellent showing of oil in lime. Frontier Oil Co.'s Hoffman 1, dr around 2200 ft.

BASTROP COUNTY — Abernathy et al's Aldridge 1, fsh around 2300 ft. Batts et al's Alexander 1, dr 1540 ft. Gulf's Bell 2, to spud in. Kate et al's Lackey 1, dr 1720 ft. Superior Oil Co.'s Lasher 1, dr below 3100 ft.

BEXAR COUNTY — Burton Oil Corp.'s Shook 1, dr 2650 ft. Dingman-Schimmil's Kelso 2, to make location. Leon Creek Oil Co.'s Reininger 1, no report. Mayfield Park Properties' Mayfield Park 1, no report. Penn Tex Oil Co.'s Dobrowolski 2, dr. Swearingen Oil Co.'s Fee 1, dk.

BEE COUNTY—Grayburg Oil Co.'s Kimbell 1, dr 1930 ft. Humble's McKinney 2, (600 ft southeast of No. 1) ru. Houston O.l Co.'s Portis 1, dr 3175 ft in shale; cored salt water at 2818-25 ft. Morgan Oil Corp.'s McKinney 1, sd at 250 ft, waiting on tools; Ray 1, reported shut down around 4450 ft. Nicholes et al's Hicks Hahl 2, set 12½-inch casing at 400 ft, now drilling at 800 ft. E. S. Price's Weiss 1, to spud in; Weiss 2, lcn. Rowan & Tong's Massingale 1, moving on. Texas Co.'s Tipps 3, dr around 4100 ft. Union Producing Co.'s Ray 7 (offset to McKinney 1 southwest) dk; Ray 8, dk.

BROOKS COUNTY — Houston Oil Co.'s Holbein-Wormser 1, dr at 5100 ft. Humble Oil & Ref. Co.'s Singer 1, Sec. 312, dr at 4116 ft.

CALDWELL COUNTY—S. Corgill's Lynch 1, dk. Cranfill-Reynolds' Strawn 1, set casing at 1801 ft; Strawn 2, dk. Humble's Briscoe 5-T, dr. Keene et al's McNeil 1, dr around 2115 ft. Morgan et al's Perry 1, dr. Trinity Drillers' McMullen 1, sd about 1860 ft.

DUVAL COUNTY—Buckner et al's Peters 1, csg set at 3686 ft, making test. Callahan and Howard's Luby 1, prep to spud. Cole Pet. Co.'s Benavides 68, blk 11, Sec. 14, dr about 2615 ft. Humble's Kohler 43, set casing at 1744 ft; Kohler 44, Sec. 424, dk. Long et al's Hahl 3, lcn; Hahl 5, prep to set casing at 2300 ft. National O.l Co.'s Ball 2, dr 3640 ft; Peters 1, dr 1600 ft. Simms Oil Co.'s Dinn 9, to spud in. Southern Crude Oil Purchasing Co.'s Dinn 1, Sec. 480, ru. Everett Suladie's Peters 1, Sec 33, dr at 2516 ft.

FAYETTE COUNTY—Mouldoon Oil & Gas Co.'s Kerr 1, dr 2340 ft.

FRIO COUNTY—Lefevre et al's Eschenburg 1, sd below 2200 ft. Dr. F. L. Thomson's Tribble 1, dr about 600 ft.

GONZALES COUNTY — Adams & Lyles' Reed 1, dr. Antibus and Cummings' Martin 1, (8 miles from Gonzales) dr below 510 ft, oil showing. Acme Oil & Royalty Co.'s (Emmick) Weber 1, dr below 2400 ft. Fitzsimmons et al's Huber 1, dr at 2460 ft. Mardon Oil Co.'s (Finnell and Elam) Robinson 2, spud in; Borer, dr about 1800 ft.

GUADALUPE COUNTY — Clemens-Trinity Drillers' White 1, dk. Cranfill & Reynolds' Appling 2, swabbing at 2450 ft, casing set just above that depth. Empire O&G Co.'s Knoblock 1, being completed, casing set at 2518 ft; Henry Willie 1, prep to set casing. Gulf's Molaer 1, ru. Humble's D. D. Baker 1, prod 1400 bbls at 2602 ft; Denman 11-A, swabbing, bottom of hole at 2622 ft; Denman 12-A, dr 2515 ft; Tadlock 2, prep to spud in; Yates Wilson 4, spud in. Magnolia's Echolds 3, dr; M. E. Roamel 1, set casing at 2320 ft; Walker 1, no report on depth; T. Dix 7, lost casing in hole about 2550 ft, skidding derrick over and prep to spud in new test; S. M. Roamel 1, trying to sidetrack casing lost at 3600 ft, to reset pipe on Edwards about 2640 ft. Simms Oil Co.'s Manford 3, prod 1368 bbls oil in Austin chalk at 2517 ft, casing set about 2410 ft. Sun Oil Co.'s Knoblock 6, drilling around 2050 ft. The Texas Co.'s Henry Willie 4, no report; Knoblock 5-A, dr around 1200 ft. Dr. F. L. Thompson's Posey 1, spud in. Turman et al's Talley 1, (St. Charles) dr around 3770 ft.

KARNES COUNTY—Hewitt et al's Matula 1, dr about 600 ft. Hurador Pet. Co.'s Porter 1, ru new rotary, hole at 3500 ft. Morgan Oil Corp.,s (Ruby and Claypool) Zepeda 1, dr about 2215 ft. The Texas Co.'s Butler 1, no report.

KERR COUNTY—Mach et al's Love 1, to spud in shortly.

KENDALL COUNTY—Borget et al's Willie Haag 1, dr below 750 ft. Dixon et al's Behr 1, dr about 340 ft. Sterling et al's Wormser 1, sd about 925 ft, reported to have bailed out large amount of oil (no additional information available). Seaboard Oil Co.'s Askey 1, spud in.

KINNEY COUNTY—Blume et al's Herbst 2, dr about 200 ft. Mardon Oil Co.'s Clamp 2, dr about 300 ft.

LA SALLE COUNTY—Salt Lake City Production Co.'s Beckwith 1, Sec. 16, still fishing around 2900 ft.

LIVE OAK COUNTY—Houston Oil Co.'s Boothe 1, dk.

MAVERICK COUNTY — Johnson et al's

Koppf 1, standing at 1600 ft. Rycade Oil Corp.'s Chittim 3, Sec. 129, producing 11,500,000 cubic ft gas and 42 bbls 43 gravity oil at 3258 ft; Chittim 5, Sec. 129, dr at 3452 ft; Chittim 6, Sec. 116, dr about 340 ft; Sullivan No. Sec. 82. dr about 1600 ft.

MEDINA COUNTY — Donoldson Oil Co.'s Adams 2, prep to spud in. Calico Pet. Co.'s Crawford 1, dr, no report on depth. Pat Armstrong's Crawford 1, spud in; Butts 1, sd around 1102 ft. Pan American Pet. Co.'s Hart installing equipment. Sweitzer's Zerr 1, drill shut down at 3800 ft. Pure Oil Co.'s Fohn 1, dr below 1800 ft.

McMULLEN COUNTY—Cowboy Oil Co.'s Shiner 1, sd around 4000 ft. Southern Crude Co.'s Baker 1, Sec. 4, dr below 3200 ft.

NUECES COUNTY—Allied Gas Company, dr about 2320 ft. Graham, Wallace, Yeagley and Patton's Wallace 1, dr below 3400 ft. Grimm et al's Roberts 1, dr around 3160 ft, cored dry, sandy shale about 3145 ft.

REFUGIO COUNTY — Blanco Creek Oil Co.'s Damon 1, (Bonnie View Ranch) Sec. 16, dr around 2600 ft. Corona Oil Co.'s Zarski 1, dr around 3422 ft. Dixon et al's No. 1, Sec 47 (Bonnie View Ranch) dr 3450 ft. Hamil Drilling Co.'s Cable 1, dr around 1940 ft. Heflin et al's Heard 1, prep to drill in, casing set at 3680 ft. Edwin M. Jones' Heard 1-A, testing, casing set at 3673 ft; Jeter 1-A testing, casing set at 3695 ft; oil showing at 3707-10 ft. Houston Gulf Gas Co.'s Lambert 2, dr below 3620 ft; Morgan-Vance 3, dr abt 1140 ft; Morgan-Shelly 3, dr 920 ft. Houston Oil Co.'s Shelton 1, set casing to test oil showing at 3664-82 ft; Dorsey 1, Blk 78, casing set at 3676, tested salt water to be plugged back for another test; Rooke 14, dr at 2516 ft; Tom Heard 1, Blk 16, dr at 4620 ft; Doughty 1, dr at 3920 ft; Fannie Heard 9, dr 3620 ft. Independent O&G Co.'s West 3, dr at 2780 ft; Shelly 1, testing at 5487 ft, casing set at 5481 ft; Mercy Academy 1, dr around 3660 ft; Helen Reilly 1, casing set at 3680 ft; Claude Heard 3, set casing about 3664 ft; B. F. Heard 1-C, dr below 4100 ft; M. F. Lambert 1, ru; Claude Heard 4, dk; Claude Heard 5, dk; O'Brien 1, to plug back for test, bottom of hole at 6489 ft (this is old well.) Lullng O&G Co.'s Fannie Heard 1, casing set at 3681 ft; being completed. Mission Drilling Co.'s Moss 1, Blk 110, coring below 6465 ft; O'Brien 1, dr around 4220 ft. Morgan Oil Corp.'s Tom Heard 1, Blk 2, prod 500 bbls at 5479 ft, casing set at 5471 ft; Fox 1, Blk 70 casing set at 3677 ft, being completed; City's 5, prod 1250 bbls, casing set at 3678 ft; Carlysle 1, Blk 2, cement 8¼-in casing at 5465 ft; Rooke 1, showing salt water at 3696 ft; Powers 1, dr about 5130 ft. Pearson Properties' Ryals 1, set 6⅝-in casing at 5474 ft, oil showing at 5478-82 ft; Johnson 1, spud in Price et al's Mission 1, dr below 2800 ft. Rutherford-Traylor Oil Co.'s Cable 1, spud in. Saxet Oil Co.'s Holmes-Heard 3 prod 50,000,000 cubic feet gas at 3707 ft; Ryalls 2, dk. Stroube and Stroube's T. W. McGuill 1, Blk 3, dk Cable 1, dr about 1940 ft. Sun Oil Co.'s Buckley 1, Blk 2, working over, casing set at 3670 ft. The Texas Co.'s Shelton 1, dr 6100 ft; Union Producing Co.'s Shelton 1, ru to set casing after blowout at 5550 ft; Rose Lambert 1-A, dr around 6200 ft; 8½-in casing set at 5245 ft; O'Brien 3, dr about 1215 ft; Power 3, dr 1568 ft; Shelly 4, dr 1827 ft; Lambert 2, dr 4312 ft. Wheatcroft et al 1, Blk 51, ru.

SAN PATRICO COUNTY—George Pickett's Baldwin 1, dr about 600 ft. La Ferria Oil & Gas Co.'s Smith 1, casing set at 2246 feet, tested salt water, no additional information available.

STARR COUNTY—Mrs. J. L. Smith's Welch 1, dr about 1000 ft. Texas Co.'s Guerra 1-A, dr 2800 ft.

UVALDE COUNTY — Phamton Oil Co.'s Claudt 1, dr 425 ft. Weldon and Welch's Benson 1, dr at 920 ft; Edmonds 1, dr around 840 ft.

VICTORIA COUNTY — Humble's Welder 3-A, suspended drilling for orders at 6275 ft, showing of oil and gas—may make test. Lion Oil Co.'s McFadden 1, loc.

VAL VERDE COUNTY—A. Bluhm's J. P. Yoas 1, Blk 3 Sec 31, dk. Phamton Oil Co.'s Ingram 1, cementing casing at 2548 ft; shut down at 2551 ft. Transcontinental Oil Co.'s Good 1, dr no depth available.

WEBB COUNTY — Buckner et al's Rosa Benavides 1, small gasser at 1482 ft. Claggett & Evans' Webster 1, Sec 684, ru. Houston Oil Co.'s Benavides 2-D, dr; Perez 1, dr. O. W. Killam's Bruni 18, dr at 2803 ft; Bruni 1, Blk 33, tested salt water at 2532 ft. Magnolia's Brennan Benavides 1, no report; casing set at 2745 ft, bottom of hole at 2751 ft. George Marshall's Webster 2, Sec 684, dr at 2430 ft. South Texas Prod Co.'s Perez 1, Sec 667, dr at 150 ft.

WILLIAMSON COUNTY — Fred Beatty's Pumphrey 1, prep to spud in. Birdwell et al's Martin 1, prep to spud in. Chapman et al's McConnell 1, ru; Abbott 1, dk; Fuch 2, dr about 1500 ft; Fuch 3, spud in; Laurence 1, spud in. Edwards and Associates' Abbott 1, dr. Harlem et al's Stiles 1, spud in. Keeshan et al's Abbott 1, dk; Lightfoot et al's Fletcher 1, dr about 1400 ft. Estell et al's McConnell 1, prep to spud in. C. P. Link's Simmons 1, blew in unexpectedly at 1498 ft, mudded in and will complete as producer. Marts et al's Abbott 1, good oil showing around 1400 ft. McNeal's Abbott 1, dr around 400 ft. Peterman et al's Abbott 1, spud in. Simms Oil Corp.'s Laurence 1, dr around 2150 ft. Scroyners et al's Laurence 1, dr abt 600 ft Southern Prod Co.'s Martin 1, dk. Taylor Temple Oil Co.'s Martin 1, prep to spud in. Tomlinson et al's Martin 1, dk; Martin 2, dk. Westheimer et al's Abbott 1, showing of oil abt 1420 ft. Wilder et al's Martin 1, spud in.

ZAPATA COUNTY — Blankenship et al's Garza 2, dr 1500 ft. Dr. Edgington's Trevino 1, Sec 412, prod 160 bbls at 1251 ft, casing set at 1238 ft; Trevino 2, Sec 412, dr 800 ft. O. W. Killam's Cuellar 13, Sec 278, casing set at 1525 ft, bottom of hole at 1539 ft; Cuellar 17, location abnd; Cuellar 21, dr around 600 ft; Howard & Moore's Redondo 1, loc. Livingston & Twiss' Trevino 1, Sec. 66, Blk 7, dr around 570 ft. Magnolia's Cuellar 3, Sec 245 resumed dr at 1341 ft, now at 1420 ft. B. F. Nixon's Guitterrez 1, Lot 5, Blk 8, loc. Reese and Shankle's Guitterrez 1, (associated lease) dr around 300 ft. South Texas Prod Co.'s Measles 9, et al (Cerrito Blanco Grant) dr. John Pappas' Cuellar 2, porcion 24, working over, flowed salt water at total depth of 1890 ft; casing set at 1675 ft.

ZAVALLA COUNTY—Pryor et al's Campbell 1, dr around 1415 ft. Southern Crude Oil Co.'s Washer 1, Sec 80, dr 3200 ft. Weigand Bros.'s Gates 1, dr around 1870 ft. Texas Gas Fuel Co.'s Matthews 1, dr below 1300 ft.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BRAZORIA COUNTY—		
Work Drlg. Co., E. J. Proctor 1, w Hoskins Mound	*	3115

AUSTIN COUNTY—J. T. O'Hara's Batla 1, Wm. Smithers sur, dr 3900 ft shale. Black Oil Co.'s Lancashire 1, 3 mi s Sealey, dr 2900 ft gbo. McInnery & Harris' Hattie McDade 1, w Kinney, sd 500 ft. Empire's J. T. Boyd 1, San Felipe, ru.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, 2 mi s Nash dome, dr 3900 ft gbo. Shell's Blakely-Winston 1, 2 mi ne Danbury, dr 4825 ft sand, oil show. Rycade's Wisdom 26, Nash dome, dr 5950 ft hard sand. Rycade-Amerada's Rapid City 1, 2 mi s Danbury, ru. Ruck's & Patterson's Hunter 1, sw Hoskins Mound, sd 1180 ft. Work Drilling Co.'s E. J. Proctor 1, w Hoskins Mound, abn at 3115 ft sand. The Texas Co.'s O. F. Ewing 1, Manvel area, dr 1357 ft gbo. Mills Bennett's E. Randon 1, Allen dome, lcn.

CHAMBERS COUNTY — Pure's W. F. Mayes 10, Lost Lake, dr 2700 ft gbo; Mayes 11, Lost Lake, ru; Lost Lake 4, dr 4225 ft hard lime; Kirby 1, Chas. Tilton sur, lcn. Shell's Herff 1, Moss Bluff, sp. Superior Oil Co.'s H. Jackson 1, 4 mi w High Island, ru.

FORT BEND COUNTY—Gulf's Brazos Valley Irrig. Co. 1, 3 mi sw Clodine, dr 5675 ft sand and shale; Moore 21, Moores Field, dk. Pure's Jackson Brown 1, 5 mi e Long Point, dk.

GRIMES COUNTY—Cranfill-Reynolds Co.'s Baylor 1, 9 mi se Navasota, dr 2250 ft shale.

HARRIS COUNTY—Humble's Simms-Smith 77, Goose Creek, dr 5800 ft sticky shale; Warren 7, Hockley, dr 4630 ft hard sand; Minnetex 2, Mykawa, sd 1177 ft; Siadous 1, Mykawa, preparing to test sand at 4933 ft, gas show. Watts Drlg. Co.'s Hubert 1, Mykawa, dr 5520 ft water sand. Higgins O. & F. Co.'s Siadous 1, Mykawa, dr 6100 ft shale. Mrs. J. C. Baldwin's Kitzman 1, 2 mi n Cypress, dr 4250 ft sandy shale. Martin, Drake & Jones' Haney 1, 3 mi e Elena, dr 3600 ft shale. Sloan Prospecting Co.'s Ulrich 1, 5 mi nw Barbers Hill, dr 1775 ft gbo.

JEFFERSON COUNTY — Westbury Oil Co.'s West 1, S. Choate sur, sd 2850 ft. Gulf's E. Thomas 13, Fannett, completed for 1500 bbls 10 per cent b.s. and water, at 3911 ft; Bordages 8, Fannett, dr 6305 ft sand; Burrell 5, Fannett, dr 2973 ft sand; G. W. Junker 1-A, dr 5878 ft shale. The Texas Co.-Houston Oil Co.'s Fitzhugh 1, Big Hill, washing down, td 5857 ft. The Texas Co.'s Pipkin 2, Big Hill, preparing to wash, td 6010 ft. Bayou Oil Co.'s Hooks-Bordages 1, 2 mi s Voth, dr 2165 ft sandy shale.

LIBERTY COUNTY — Harrison Oil Co.'s Jamison 1, North Dayton, dr 5025 ft sand. The Texas Co.-Paraffine Oil Co.'s Fee 1, N. Dayton, dr 2315 ft shale and lime. Houtex Prod. Co.'s Brown & Tadlock 1, N. Dayton, dr 3890 ft rock. Gulf's Weiser 1, Hankamer, dr 6385 ft sticky shale; Boyt 4, lcn; Boyt 5, dk. Cranfill-Reynolds Co.'s Moores Bluff Corp. 2, Esperson Dome, dr 2200 ft shale; Esperson 8, dr 3205 ft gbo; Esperson 9, lcn. Yount-Lee Oil Co.'s Moores Bluff Corp. 2, Esperson dome, set cas at 3288 ft.

MATAGORDA COUNTY—Cockburn et al's Hawkins 1, Shepherd's Mott, dr 4785 ft rock.

MONTGOMERY COUNTY—Kelly Baker's Juergus 2, 3 mi Conroe, dr 1800 ft.

ORANGE COUNTY—Gulf's W. H. Stark 1, Port Neches, dk. The Texas Co.'s Kuhn 2, Port Neches, ru; Stark 2, ru.

VICTORIA COUNTY—Humble's Welder 1, 3 mi se Nursery, dr 6202 ft sandy shale.

WALKER COUNTY — Indian Pet. Co.'s Smither 1, ne Huntsville, dr 3075 ft shale. Joyce Richardson et al's Smither 1, 12 mi n Huntsville, ru.

WALLER COUNTY—W. P. Morris' Chapman 1, 6 mi n Hempstead, sd 2075 ft. Kirby Pet. Co.'s Davis 2, San Felipe, sp.

WASHINGTON COUNTY—W. D. Anderson et al's Hughes 1, 3 mi n Chapel Hill, dr 3450 ft shale; Muellar 1, ne Burton, dk. L. O. Gleason's Nowak 1, near Brenham, dr 1550 ft shale. W. B. Birdwell's Schram 1, 3 mi e Brenham, dr 1850 ft shale.

SOUTH LOUISIANA

ACADIA PARISH — Yount-Lee Oil Co.'s Houssiere Latreille 8, Evangeline, dr 6080 ft sand; C. O. & M. Co. 6, Evangeline, dr 4575 ft. Chas. P. Seiss' Abshire 1, 1 mi w Crowley, dr 5025 ft hard sand. The Texas Co.'s Rayne Hrs. 5, Evangeline, dr 7340 ft sandy shale. Calcasieu Oil Co.'s Hayes 1, dr 3800 ft sandy shale.

ASCENSION PARISH—Gulf's United Lds. Co. 17, Sorrento, dr 4250 ft. McElroy Oil Corp.'s Lacey 2, s Sorrento dome, sd 4070 ft.

CALCASIEU PARISH—J. O. Davis' Industrial Lbr. Co. 1, Starks, sd 3775 ft. Gulf's Lutcher-Moore 20, Starks, dr 1000 ft. Union Sulphur Co.'s Moss 1, wildcat in Lockport area, dr 2750 ft gbo. Shell's Heyd 1, Iowa, moving in.

CAMERON PARISH—The Texas Co.'s Calcasieu Lake 5-A, S. Calcasieu Lake, ru; State E. Hackberry 6, dr 3300 ft gbo. Pure's Yount-Lee 7, Sweet Lake sd 6381 ft; No. 9, dr 4215 ft. Shell's Watkins 14, Black Bayou, dr 510 ft sand. Vacuum's Cameron Meadows Ld. Co. 1, e Johnson Bayou, dr 2885 ft sandy shale, slight show oil and gas. Calcasieu Oil Co.'s Caldwell 5, E. Hackberry, dr 5250 ft sand. Rycade-Humble's Gulf Land 1, Hackberry, dr 5085 ft.

IBERIA PARISH—The Texas Co.'s State Vermilion Bay 5, lcn. Jefferson Lake Oil Co.'s Peigneur 5, Jefferson Island, dr 600 ft rock; No. 6, ru.

IBERVILLE PARISH—Shell's Wilbert 4, White Castle, dr 3265 ft. Standard of La.'s Schwing 2, Bayou Blue, dr 3290 ft sand, oil show; Schwing 4, dr 1000 ft sandy shale; No. 5, capped piling; Wilbert 6, Bayou Blue, set cas at 680 ft; Wilbert 5, capped piling; Cyrus Case 1, Bayou des Glaise, dr 2105 ft hard sand; No. 2, lcn.

JEFFERSON DAVIS PARISH—Yount-Lee Oil Co.'s Geo. Courtney 1, Welsh, sd. Pure's Day 1, 1½ mi sw Welsh, sdtr 3870 ft.

LA FOURCHE PARISH — Gulf's City of New Orleans 1, Sec. 19-23s-23e, dr 5875 ft hard sand. The Texas Co.'s Garden Island Bay State 4, moving in; LL. & E-Leesville 1,

Sec. 27-21s-22e, lcn. Humble's Cockrell-Moran 1, dr 1740 ft after testing salt water; Lake Washington 1, T 20s-, R 26e, dr 4445 ft sand.

ST. LANDRY PARISH—Elhof Explorations' Valmont Ledoux 1, Eunice, sd 4360 ft. The Texas Co.'s Botany Bay Fee 5, Port Barre, set cas at 3375 ft to test; No. 6, dr 3600 ft sand, oil show. Gulf's Godet 3, Port Barre, dr 2625 ft sand. W. H. Hoskins 2-A, dr 1850 ft sand. Hebert-Baker Oil Co.'s E. D. Fisher 1, Sec. 10-3s-4e, dr 4000 ft sandy shale.

ST. MARTIN PARISH—The Texas Co.'s St. Martin Land Co. Fee 1, Hager dome, fsh at 6550 ft; No. 2, dr 5645 ft; Iberville Ld. Co. 1, Hager dome, fsh 6100 ft. Yount-Lee Oil Co.'s Hebert Heirs 1, Anse La Butte, dr 5604 ft shale; No. 2, lcn. Rycade's Bayou Bouillon 9-B, Bayou Bouillon, dr 3385 ft water sand.

ST. MARY PARISH — Empire-Vacuum's Oscar Zenor 1, 2 mi n Patterson, dr 5237 ft sandy shale, no show. Pure's Wax Lake State 1, lcn abn; 2, ru.

ST. TAMMANY PARISH—Washington & Tammany Drlg. Co.'s Cousack 1, Sec. 8-6s-10e, dr plug, td 2930 ft.

TERREBONNE PARISH — Chas. Paggi's Evergreen 2, dr 1800 ft gbo. The Texas Co.'s LLE-Bay Junop 1, lcn; Caillou Island 2, plugging back after testing salt water at 3292 ft; No. 3, lcn; Four Isle 3, dk; Lake Pelto B-2, dk; Lake Barre State 3, came in flowing 88 bbls per hr at 3870 ft; Lake Pelto B-3, dr 4425 ft rock; Bay St. Elaine 4, set cas at 1110 ft; Lake Barre State 4, lcn; Dog Lake 2-A, bldg dk foundation.

MISSISSIPPI

ALCORN COUNTY—Alcorn Pet. Co.'s Matthews 1, 14-2-7, re-running 6-in cas with pck at 2418 ft, td 2735 ft.

CHICKASAW COUNTY—Hightower & Golsan's Fleming 1, 20-13-3w, driving 8¼-in at 1325 ft. Fleming 2, 15-13-2w, dk pat.

CLAIBORNE COUNTY—Ben White's Old Hen 1, 26-10-4, sd 2004 ft.

HARRISON COUNTY (Gulfport Dist.)—Dalton Oil Co.'s Lopez 1, 15-7-10w, lcn.

HINDS COUNTY (Jackson Dist.) — Mrs. Ella Rawls Reeder's State Land 1, 25-6-1e, ds hung at 2800 ft, td 2905 ft. Jackson O&G Co.'s Mayes 1, 2-5-1e, sd, wo 2585 ft. Taylor 1, 35-6-1e, sp, set 15½-in cas 61 ft, sd repr rig 400 ft. Louisiana G&F Co.'s Harris 1, 35-6-1e, sp, set 12½-in cas 93 ft. Love O&G Co.'s Lot 1, 35-6-1e, dk. Love Pet. Co.'s Mendoza 1, 11-5-1e, rig up.

KEMPER COUNTY (De Kalb Dist.)—W. W. Jones' Fee 1, lcn not given, dk.

LA FAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rigged up wo.

LAUDERDALE COUNTY (Meridian Dist.) Lauderdale O&G Co.'s Lackey 1, 2-7-16, set 8¼-in cas 2790 ft, wo 2816 ft. Meridian Nat. Gas Co.'s Mattie Houser 1, 33-8-18, coring shale and gbo 2770 ft. Boyd Hammond's Craig 1, 2-6-14, dk.

LINCOLN COUNTY (Brookhaven Dist.)—Lincoln O&G Co.'s Pat Case 1, 21-8-6, sd 2221 ft.

LEE COUNTY—Lee County Pet. Co.'s Hickman 1, 12-8-6, sd 920 ft.

MONROE COUNTY (Amory Dist.)—Amory Pet. Co.'s Hall 1, 8-13-17, set 8-in cas 2293 ft, set 6-in cas 2333 ft, wo, td 2420 ft, td old hole 3045 ft. Amory Dev. Co.'s Bourland 1, 2-13-19, sd in lime, bailer in hole, td 2912 ft. Park Bowser's Cowart 1, 2-12-99, driving pipe 85 ft.

RANKIN COUNTY (Jackson Dist.)—Gulf Ref. Co.'s Rainey 1, 13-5-1e, set 15½-in cas 88 ft, set 12¼-in cas 960 ft, tested 1000 ft fluid 40 per cent oil through ds 2510-15 ft, arr set 9-in cas 2500 ft. R. A. Moore et al's Interior Lbr. Co. 1, 28-6-2e, dk.

WARREN COUNTY (Vicksburg Dist.)—Henderson et al's Dornbusch 1, 8-18-15, sd, wo with ds stuck in hole, td 2475 ft.

WEBSTER COUNTY—Cumberland Oil Co.'s Henley 1, 15-21-11, retaking leases to resume dr 1865 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collette et al's Blackmer 1, 14-11-4w, topped red beds 2316 ft, sr 1650 ft, td 2433 ft.

YAZOO COUNTY—Amerada Pet. Corp.'s Campbell 1, 24-21-2, topped Cretaceous chalk 3600 ft, topped basal Midway 4910 ft, dr sandy lime 5183 ft.

ALABAMA

HOUSTON COUNTY—J. R. Sealey's Fee 1, 13-1n-27e, changing from cable tools to rotary, td 3100 ft.

LAMAR COUNTY—Briggs & Knapp's Wefel 1, 25-12-14, set 47/8-in cas 1658 ft, sd 1740 ft.

LAUDERDALE COUNTY—P. J. McAlpine's O'Neal Hrs. 1, 8-2s-13w, dr 250 ft.

MARION COUNTY—P. J. McAlpine's Clark 1, 22-11-14, dk pat.

MORGAN COUNTY—Albany-Decatur O&G Co.'s English 1, 6-6-4, fsh for cas, td 4130 ft.

SUMTER COUNTY—B. W. Bates' Fee 1, 3-18-1w, ta 1200 ft. Fee 2, 3-18-1w, rig up.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, arr resume dr in limey shale 881 ft. Hobson Bros. 1,, 9-8-2w, sd 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2, dr below 720 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, set 6-in cas 1045 ft, dr 1714 ft.

NORTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Arkansas Fuel Oil Co., Bolinger 1, 38-23-11	150	3174
Palmer Corp., Robinson 1, 26-23-12	30	3175
C. L. West et al, Sentell-Dickson 1, 3-20-13	*	2215
CADDO PARISH—		
Simplex Oil Co., Sibley 1, 15-19-14 (formerly Oil River Corp.)	10	2495
RICHLAND PARISH—		
Industrial Gas Co., A. T. Davidson 1, 6-16-7e	*	2763
Ruston Drilling Co., 7-16-7e	*	2600
SABINE PARISH—		
Amerada Pet. Corp., Bowman-Hicks 1, 33-8-12	25	2456
W. G. Gray, Tr., Bolin 1, 31-8-12	250	2405
V. M. Miller, Colquitt 1, 31-8-12	500	2194

BOSSIER PARISH—Ark. Fuel Oil Co.'s Bolinger 1, 38-23-11, flowing 150 bbls oil through 2½-in tube 7 ft sand, set 6⅝-in cas 3167 ft, td 3174 ft. Bolinger 2, 38-23-11, rig up. Bolinger 3, 38-23-11, dk. Bolinger 4, 38-23-11, dk. Bahan & Bahan's Pleasant 1, 25-23-12, rig up. Mays 1, 26-23-12, plugged back to 2970 ft, wo cement, td 3180 ft. Askew & Goodman's Roberson 1, 25-23-12, sp, dr 50 ft. Delaware La. Dev. Co.'s Bolinger 3, 38-23-11, old well arr deepen. Bolinger 6, 38-23-11, sp, set 10-in cas 265 ft. Lide et al's Matlock 1, 26-23-12, rig up. Natural Gas Prod. Co.'s U. S. 2, 31-23-11, set 6⅝-in cas 3157 ft, td 3159 ft. U. S. 3, 31-23-11, lcn. U. S. 4, 31-23-11, lcn. Greenwood Prod. Co.'s Bolinger 1, 36-23-12, rig up to deepen. Lide et al's Farrington 1, 23-23-12, sp, dr 1600 ft. H. L. Hunt's Allen 1, 30-23-11, tested dry through ds 2703 ft, arr deepen. J. W. Peyton 4, 25-23-12, set 6⅝-in cas 3149 ft, flowing est rate 400 bbls day, td 3157 ft. J. W. Peyton 5, 25-23-12, set 10-in cas 350 ft, (previous report dr 2400 ft in error). J. W. Peyton 6, 25-23-12, set 6⅝-in cas 3137 ft, td 3143 ft. J. W. Peyton 7, 25-23-12, lcn. J. W. Peyton 8, 25-23-12, rig up. Peyton 9, 25-23-12, set 10-in cas 350 ft. Peyton 10, 25-23-12, dr 500 ft. Woodley et al's L. & A. 2, 14-23-12, coring 3125 ft. Roberson 1, 22-23-12, rig up. C. L. West et al's Sentell-Dickson 1, 3-20-13, dry, abn, td 2215 ft. Nell & Lanier's Biedenharn 1, 23-21-14, wosr, 998 ft. Lanier et al's Le Rosen 1, 26-21-14, dk pat. Walker et al's Antrim 1, 28-21-13, sd 3184 ft. H. I. Morgan's Weatherbee 3, 21-19-11, sp, set 10-in cas 180 ft, dr 1700 ft. Muslow Oil Co.'s Barnett 1, 25-23-12, set 6⅝-in cas 3135 ft, td 3151 ft. Marks Meyer 1, 36-23-12, old well arr deepen, td 3088 ft. Kilgore C-1, 31-23-11, set 4½-in cas 3150 ft, 2500 ft [illegible] in hole, td 3167 ft, arr deepen with cale tools. Floyd 1, 25-23-12, dr 2600 ft. Peyton 2, 30-23-11, dr 2400 ft. Peyton 3, 30-23-11, set 6⅝-in cas 3130 ft, 8 ft sand, td 3145 ft. Kilgore B-2, 31-23-11, set 6⅝-in cas 3110 ft. Kilgore B-3, 31-23-11, set 6⅝-in cas 3130 ft. Kilgore A-2, 31-23-11, set 10-in cas 255 ft. Goodman-Johnson's Martin 1, 30-23-11, wosr, 3169 ft. Magnolia Pet. Co.'s Matlock 2, 25-23-12, rig up. Matlock 3, 25-23-12, dk. Dodson 1, 1[illegible] 23-12, tested 9 fourbles sw 3099 ft, dr 3183 ft. Roberson 1, 26-23-12, tested 755 ft sw, show gas 3122 ft, wo. La. Pet. Co.'s H. H. Bain 2 (formerly carried as Bain 1), 31-23-11, dr 1500 ft. H. H. Bain 3, (formerly carried as Bain 2) 31-23-11, dr 1550 ft. Palmer Corp.'s Robinson 1, 26-23-12, pumping 30 bbls oil daily, 16 ft sandy shale, td 3175 ft. Texas Co.'s J. W. Peyton 2, 25-23-12, set 6-in cas 3135 ft, will pump est 15 bbls, td 3195 ft. J. W. Peyton 4, 30-23-11, dr 2961 ft. J. W. Peyton 5, 25-23-12, dk. J. W. Peyton 6, 30-23-11, dk. Wilkinson 3, 31-23-11, set 6-in cas 3114 ft, flowing est 600 bbls, td 3120 ft. Wilkinson 4, 31-23-11, set 6-in cas 3130 ft, td 3138 ft. Wilkinson 5, 30-23-12, rig up. Tippett et al's Holmes 1, 36-23-12 dr 2950 ft. Lee Kennebrew et al's Garrett 1, 36-23-12, sd, rebldg dk, td 2900 ft. Olsan Bros. et al's Pine Woods Lbr. Co. 1, 25-23-12, lcn. Phillips Pet. Co.'s Floyd 1, 25-23-12, rig up. Bolinger 3, 30-23-11, dr 2400 ft. Bolinger 4, 30-23-11, sp, set 10-in cas 215 ft. Bolinger 5, 38-23-11, dk pat. E. W. Bateman's Bolinger 1, 38-23-11, rig up. Bolinger 2, 38-23-11, lcn. Eylers O&G Co.'s Wise 1, 35-23-12, dk. Haynes Bros.' Martin 1, 26-23-12, rig up.

CADDO PARISH—Triangle Drilling Co.'s Hardy 1, 18-19-16, dr 1650 ft. C. W. Robinson's Wilson 1, 2-15-16, dr gumbo 1955 ft. I. N. Pharris' Oden 1, 19-19-14, set 6⅝-in cas 2379 ft, td 2409 ft. Simplex Oil Co.'s Sibley 1, pumping 10 bbls oil, td 2495 ft (formerly owned by Old River Oil Corp.) R. W. Norton's Till 1, 33-23-16, sd, wo 4496 ft. Magnolia Pet. Co.'s Swann & Davis 1, 16-21-14, tested dry through ds, 944 ft, show oil 946 ft. L. B. Mawk's Swann Bros. 1, 23-21-14, rig up.

CLAIBORNE PARISH—El Dorado Chief Oil Co.'s Simmons 1, 27-20-7w, sd, wo in shale and bldrs 2240 ft. Leue Oil Co.'s Taylor 1, 16-22-6w, lcn.

CONCORDIA PARISH—Joe Marr et al's Maxwell 1, 35-3-8e, sd high water 400 ft.

DE SOTO PARISH—Benson O&G Co.'s Harris 1, 6-10-12, set 6⅝-in cas 3070 ft, sd, wo 3650 ft. R. O. Roy's Farmer E-1, 5-13-13, set 6⅝-in cas 2765 ft, made 336 bbls pipe line oil 39.7 gravity, 3¼ hrs, wo, storage, td 2880 ft. Farmer B-1, 8-13-13, dk. Lee 1, 33-13-13, dk. Ark. Fuel Oil Co.'s Scott 1, 34-14-13, lcn.

FRANKLIN PARISH — Evansville Inv. Co.'s Welch 1, 2-148e, sd 3030 ft. Franklin O&G Co.'s O'Brien 1, 7-15-9e, dr 2501 ft. Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

NATCHITOCHES PARISH—S. D. McDaniels' Clark-Morse 1, 23-5-6w, sd 2436 ft. Robeline O&G Co.'s Winn 1, 7-8-9w, sd in rock 1635 ft.

OUACHITA PARISH—J. L. Bullock's Tr.'s West Va. 1, 25-18-5e, sd 2700 ft.

RAPIDES PARISH—Ayers Bros.' Wicklipp 1, 9-5n-2w, sd 2650 ft.

RED RIVER PARISH — W. D. Ball's Krumbholz 1, 32-14-10, sdtr, junk 1640 ft.

RICHLAND PARISH—Richland O&G Co.'s Singeltary 1, 20-18-7e, set 9-in cas 970 ft. Austin & McDonald's Millsaps 2, 17-17-6e, sd 2697 ft. Millsaps 3, 16-17-6e, sd 2477 ft. Millsaps 4, 16-17-6e, lcn. Millsaps 5, 8-17-6e, dk. Hunt 1, 13-17-5e, dk. Industrial Gas Co.'s A. T. Davidson 1, 6-16-7e, sw, abn, td 2763 ft. Ruston Drilling Co. 1, 7-16-7e, dry, abn, td 2600 ft (formerly carried as Ruston Drilling Co.'s Hodge 1.) W. C. Feazel's Landrum 1, 6-16-7e, dk. Shreveport Contractors' Buie 1, 17-15-7e, sd in black shale 2527 ft. International Gas Co.'s Lagrone 1, 7-16-7e, lcn.

SABINE PARISH—Sabine O&G Co.'s On-

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Descriptive Bulletin
No. 83
Sent on Request

THE
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COMPANIES

derson 1, 19-8-12, sd, wo, 2603 ft. Benedum & Trees' Bowman-Hicks A-2, 3-7-12, set 8¼-in cas 2390 ft, tested 125 ft oil 2515 ft, deepened to 2725 ft, arr test. Bowman-Hicks 3, 34-8-12, set 6⅝-in cas 2339 ft, arr drill in with cable tools, td 2357 ft. Bowman-Hicks 4, 34-8-12, rig up. Bowman-Hicks 5, 34-8-12, set 8¼-in cas 2355 ft, td 2358 ft. Bowman-Hicks 6, 33-8-12, dr 1736 ft. Bowman-Hicks 7, 4-7-12, dr 1585 ft. Sabine Lbr. Co. 1, 34-8-12, dr 2300 ft. Bowman-Hicks 8, 33-8-12, dk. Peavy-Wilson Lbr. Co. 1, 21-6-13, dk. R. L. Gay, Tr.'s, Bowman-Hicks 7, 14-7-14, set 10-in 44 ft. Bowman-Hicks 8, 18-7-13, dk. Sabine Lbr. Co. 4, 13-7-14, sp, dr 250 ft. A. H. Tarver's Long Bell Lbr. Co. 1, 18-8-13, dr 3185 ft. Sabine State Bank 1, 27-8-12, topped chalk 2332 ft, set 8¼-in cas 2333 ft, 1200 ft oil in hole, wosr, td 2673 ft. Olsan Bros.' Hooker 1, 27-8-12, topped chalk 2357 ft, set 6⅝-in cas 2333 ft, wosr, td 2625 ft. Leone 1, 32-8-12, set 6⅝-in cas 2176 ft, wosr, td 2575 ft. Ferguson 1, 33-8-12, dk. Ohio Oil Co.'s Bowman-Hicks 3, 33-8-12, set 6⅝-in cas 2400 ft. Bowman-Hicks 4, set 6⅝-in cas 2265 ft, td 2280 ft. Bridges-Clark Oil Co.'s Gay 1, 3-9-12, blew out making 10 to 12 mil ft gas 20 bbls oil 200 bbls sw, through ds, killed off, set 6⅝-in cas 3116 ft, came in making est 20 mil ft gas, td 3274 ft. Cook 1, 3-9-12, dk. Lion O. R. Co. & Lide et al's Sabine Lbr. Co. 2, 31-8-12, set 6⅝-in cas 2182 ft, wosr, td 2224 ft. V. M. Miller's Colquitt 1, 31-8-12, set 6⅝-in cas 2176 ft, swabbing and flowing 500 bbls oil daily, td 2194 ft. W. G. Gray's Bolin 1, 31-8-12, set 8¼-in cas 2167 ft, flowing 250 bbls oil daily by heads, td 2405 ft. Nulden 1, 6-7-12, set 6⅝-in cas 2197 ft. Standard Oil Co. of La.'s Nunn 1, 32-8-12, set 6⅝-in cas 2158 ft. Ruston Drilling Co.'s Bowman Hicks 1, 4-7-12, set 6⅝-in cas 2411 ft, 400 ft oil in hole, wo, td 2640 ft. Bowman-Hicks A-1, 35-8-12, set 6⅝-in cas 2330 ft. Bowman-Hicks A-2, 35-8-12, dk. Bowman-Hicks B-1, 24-7-14, dk. Warner Quinlan's Sabine Lbr. Co. 2, 34-8-12, lcn. Stovall Drilling Co.'s Lefkovitz 1, 33-8-12, set 6⅝-in cas 2328 ft, bailed dry at 2618 ft, arr deepen. Le Grande et al's Haley 1, 6-7-12, set 6⅝-in cas 2130 ft, flowing sw, sd, in litigation, td 2576 ft. Giaque 1, 6-7-12, lcn. D. H. Reddick, Tr.'s Scretchfield 1, 16-9-12, claim gas show 2315 ft, wo. W. D. Ball's Long Bell Lbr. Co. 1, 35-8-13, rig up. Amerada Pet. Corp.'s Bowman-Hicks 1, 33-8-12, pumping 25 bbls oil day, td 2456 ft. J. M. Bridges' McWilliams 1, 30-10-11, set 6⅝-in cas 3116 ft. Paramount O&G Co.'s Woolums 1, 11-6-12, sd, dr 50 ft. Zeke Lohman's Wyatt Lbr. Co. 1, 18-4-11, dk. Pelican Nat. Gas Co.'s La. Long Leaf 1, 4-7-11, dr 320 ft. Sabine Lbr. Co. 1, 1-7-12, dr rock 765 ft. Ray-Dawes Drilling Co.'s Mansfield Hdw. Lbr. Co. 1, 38-8-13, dr 975 ft. Ark. Fuel Oil Co.'s Nunn 1, 32-8-12, set 6⅝-in cas 2160 ft. Henshaw et al's Sabine A-1, 31-8-12, dr 840 ft. Sabine A-2, 31-8-12, set 6-in cas 2176 ft, dr in with ct 2197 ft. Sabine A-3, 31-8-12, lcn. Sabine B-1, 31-8-12, dr 1815 ft. C. L. Jett, Tr.'s Jones 1, 31-8-12, set 10-in cas 100 ft, wo. O'Brien Bros.' Colquitt 1, 32-8-12, tested dry at 2190 ft and at 2215 ft, arr deepen. E. C. Simmons' Bolin 1, 31-812, set 6⅝-in cas 2140 ft. Leach 1, 31-8-12, lcn. Air Lift Oil Co. & Root Ref. Co.'s Leone 1, 32-8-12, dr 840 ft. Broderick & Calvert's Sabine 1, 31-8-12, dk pat. G. H. Broderick's Bolin 1, 31-8-12, rigging up wo. Joe Burham et al's Bolin 1, 31-8-12, dr 1300 ft. David & Tyson's Neville & Roberts 1, 31-8-12, dr 605 ft. Dixie Oil Co.'s Nunn 1, 32-8-12, dr 1460 ft. Floyd Oil Corp.'s Barnett 1, 31-8-12, sp, dr 50 ft. Glassel & Merren's Thomas 1, 31-8-12, dr 1350 ft. Hebert Oil Co.'s Noble 1, 31-8-12, dk. Sabine Lbr. Co.'s Fee 1, 31-8-12, sp, dr 50 ft. W. S. Smith et al's Colquitt 1, 31-8-12, dk. Williams 1, 31-8-12, rig up. Henderson 1, 31-8-12, dk. F. M. Hood's Winston 1, 31-8-12, dk. Bahan & Bahan's Meshell 1, 32-8-12, lcn. J. R. Crawford's Pearce 1, 32-8-12, dk pat. Philp Bros.' Dow 1, 31-8-12, dk.

TENSAS PARISH—Willis et al's Curry 1, 39-11-12e, sd 650 ft.

UNION PARISH—Fred Stovall's Stovall 1, 32-23-4e, moved rig high water.

WEBSTER PARISH—F. M. Fuller's Monzingo 1, 27-18-8e, arr resume dr, td 600 ft. Pat Hudson's Gardner 1, 1-22-11, dk; B. L. Slack 1, 36-23-11, set 6-inch cas 2680 ft, 4t ft sand flowing est 150 bbls oil, td 2741 ft. E. W. Bateman's Womble 3, 1-22-11, set 6-inch cas 2690 ft, wosr td 2704 ft. Magnolia Pet. Co.'s Denman 2, 1-22-11, set 8⅛-inch cas 2737 ft, wosr, td 2749 ft; Scroggins 3, 1-22-11, dk. Mount Vernon O&G Co.'s Pardee 3, 3-22-11, sp dr 200 ft; No. 2 drilled by Jacob Laskin, Tr. in same section). Phillips Pet. Co.'s Bolinger A-1, 30-23-11, wosr td 3247 ft. Merritt & Merritt's Boucher 1, 17-23-11, tested 17 fourbles oil and little sw thru ds 2705-8 ft, arr set cas. Leggett et al's Slack 1, 36-23-11, rig up.

WEST CARROLL PARISH—Palmer Corp.'s Marston A-1, 11-19-10e, set 5-inch cas 2592 ft, bailing cas td 2675 ft. H. L. Hunt's Brown 1, 4-21-11e, losing returns 2116 ft, arr set cas.

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
OUACHITA COUNTY—		
A. P. Smith et al. Reynolds 1, 21-14-17	*	1777
Magnolia Pet. Co., Grayson 1, 21-15-19	75	1478
UNION COUNTY—		
Frank Staples, Ainsworth 1, 8-19-16	*	2183
O. W. Estes, Telford 1, 35-17-15	*	2674
Sonnell Felsenthal, Fee 1, 2-18-15	15	2191
Modisette Drilling Co., Federal Pet. Co. et al 1, 14-18-14	40	2256

COLUMIA COUNTY — L. E. Parker's Franks 1, 25-19-22, sd 2831 ft.

CLEVELAND COUNTY—Donnell et al's Fee 1, 33-11-9w, sd wo water 185 ft.

CLEBURNE COUNTY — Cosden Oil Co.'s Donithan Lbr. Co. 1, 19-9-10, dr blue shale 2455 ft.

DREW COUNTY—McClintock & Goedke's Ogle 1, 33-13-3, sd in new hole 1810 ft, td old hole 2530 ft.

FAULKNER COUNTY—Gold Creek O&G Co.'s Stermer 1, 17-14-13, ta 3872 ft; Stermer 2, 17-4-13, rigged up ready to sp dr water well.

FRANKLIN COUNTY — Ozark Nat. Gas Corp.'s McElroy 1, 15-8-27, arr plug back, td 3100 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, dr 3415 ft.

GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, ta 1400 ft.

JOHNSON COUNTY—Ark. La. Pipe Line Co.'s Patterson 1, 14-10-14, set 13⅝-inch cas 1500 ft, set 10-inch cas 2480 ft, fsh sl p 2900 ft. Blackwell O&G Co.'s Wyver 1, 21-8-25, jarring out 6-inch cas at 2100 ft to test gas sand 1900 ft, td 5600 ft.

LOGAN COUNTY—M. W. Greesom's Perk 1, 21-8-24, sd 1309 ft.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LITTLE RIVER COUNTY — Grote et al's Allen 1, 31-12-31, ta 2941 ft. C. F. McDonald's Black 1, 12-13-28, tested sw flow 2016 ft, wo. Buck Oil Co.'s Taafe 1, 25-12-32, sd 2330 ft.

MADISON COUNTY—Phillips et al's Skinner 1, 11-14-28, arr resume dr, td 1461 ft.

NEVADA COUNTY — Roy Davis et al's Henry et al 1, 10-12-20, rigged up wo.

OUACHITA COUNTY — Artex Oil Co.'s Smith 1, 31-15-17, ta 3188 ft. McDonald Bros.' Wilson 2, 25-15-18, dr lime 2615 ft. A. P. Smith et al's Reynolds 1, 21-14-17, set 6-in cas 1711 ft sw, abn td 1777 ft. Magnolia Pet. Co.'s Grayson 1, 21-15-19, set 8⅛-in cas 1466 ft, pumping 75 bbls oil 225 bbls sw, td 1478 ft. Grayson 2, 21-15-19, set 8⅛-in cas 1478 ft, td 1480 ft.

PIKE COUNTY—Theo. Davis, Tr.'s Ruth Wilson 1, 25-5s-26w, sd 718 ft.

POPE COUNTY — Cosden Oil Co.'s Mo. Pac. R. R. 1, 13-9-19w, set 10-in cas 2508 ft, dr 3235 ft. Ark. La. Pipe Line Co.'s Crutchfield 1, 14-9-21, ta 1705 ft.

SCOTT COUNTY — Mansfield Gas Co.'s Norris 1, 6-4n-30w, set 10-in cas 1447 ft, dr shale 1930 ft.

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, lcn. Lavaca O&G Co.'s Cason 3, 21-8-30, dk. J. O. Ingram 7, 22-8-30, dr 2700 ft, no recent report. A. G. Williams, Jr.'s Patterson 1, 27-8-30, lcn. Lavaca O&G Co.'s Bradley 7, 28-8-30, rig up.

ST. FRANCIS COUNTY—Brownlee Drilling Co.'s Whitted 1, 28-4-1, dr 400 ft.

UNION COUNTY — Frank Staples Ainsworth 1, 8-19-16, dry abn, td 2183 ft. Lion O. R. Co.'s McDuffie 1, 32-19-16, ta 4506 ft. O. W. Estes' Telford 1, 35-17-15, sw, abn td 2674 ft. Sonnell Felsenthal's Fee 1, 2-18-15, pumping 15 bbls oil 2 per ct sw, td 2191 ft. Modisette Drilling Co.'s Federal Pet. Co. et al 1, 14-18-14 set 6⅝-in cas 2234 ft, pumping 40 bbls oil 8 per cent sw, td 2256 ft. Johnston Drilling Co.'s Tate 1, 14-18-14, set 6⅝-in cas 2204 ft, 10 ft sand, td 2226 ft. H. L. Hunt's Pratt 6, 7-18-15, sanding pumping 2214 ft. Al-Cal Oil Corp.'s Haney 1, 1-18-16, sd, wo 2770 ft. Malloy & Co.'s Robertson 3, 6-18-15, lcn. Goodwin 4, 36-17-16, set 6⅝-in cas 2186 ft. Murphy 1, 1-18-16, rig up. Wisinger & Ball's Rodgers 1, 31-17-15, cementing off split joint 300 ft down after setting 6⅝-in cas 2170 ft. Lion O. R. Co.'s Ballard 1, 10-18-13, tested dry 3568 ft, tested 2½ joints m and w 3568-71 ft, tested 28 fourbles sw 358-83 ft in 10 minutes, testing again 3576-83 ft. Johnson & Gummer's Cargile 4-18-13, coring 3567 ft. Federal Pet. Co.'s Tillman 1, 9-18-13, lcn. Marine Oil Co.'s Winn Est. B-2, 10-18-13, set 12½-in cas 273 ft, dr 2975 ft. Simms Oil Co.'s M. H. Simmons 1, 10-18-13, dr 3416 ft. G. C. Simmons 1, 10-18-13, rig up. M. H. Simmons 2, 10-18-13, lcn. E. L. Chapman's School District 1, 9-18-13, lcn. H. L. Hunt's Norris 1, 17-18-12, rig up to deepen, td 3406 ft. Modisette Drilling Co.'s Union Sawmill 3, 14-18-14, lcn.

WASHINGTON COUNTY — Lincoln Lease Holding Co.'s Townsite 1, 30-15-32, sd 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, trying kill water flow 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

WHITE COUNTY—Letona Synd.'s Letona 1, 35-9-8, set 5/16-in cas 3500 ft, sd 3650 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7n-21w, arr resume dr 3550 ft.

MOUNTAIN STATES

MONTANA

BIG HORN — Montana Production Co.'s Lynde 2, 21-6s-35e, sd 3056 ft.

CARBON—Atlantic Oil Co., 20-7s-24e, sd in Madison 1840 ft.

CARTER—Carter & Co., 1, nw 11-2n-58e, plugged back to 2030 ft. to test. Montesota Oil & Dev. Co. 1, se 7-8n-58w, set 5 3/16-in at 930 ft. Poss Pet Corp., nw 7-8n-57w, sd 2505 ft.

CASCADE—Piegan et al, 36-20n-3w, dr 2130 ft. Eden Oil Co., 1, sw 27-18n-4e, sd 1325 ft.

CUSTER—Montana Belle Oil Co., 1, ne 28-8n-45e, sd 4562 ft.

DANIEL—Whitetail Oil Synd., 1, nw 10-36n-50e, sd 1467 ft.

FERGUS—Melton Corp., sw 24-21n-17e, set string td 2700 ft., prep to resume.

GALLATIN—California Co.'s Ringling 1, se 35-5n-7e, dr 3778 ft.

GARFIELD—Montana Corp.'s State 1, ne 36-16n-38e, set 6¼-in casing at 3950 ft.

GLACIER—Kootenai O&G Co., 1, 13-35n-6w, prep to resume at 250 ft. Fulton Pet Co.'s Hannah 1, ne 28-36n-12w, rig up. Rim Rock Oil Co.'s Brown 1, se 29-35n-5, rig up.

LIBERTY—Square Deal Oil Co.'s Federal Landbank 1, 1-32n-7e, shutting off water at 3470 ft. Thompson, Thompson 1, sw 7-34n-4e, sd 2314 ft. Northland Oil & Gas Co.'s Yurman 1, 35-33n-6e, sd 1030 ft. Sunburst O&R Co.'s Walford 1, ne 18-36-60, rig.

MUSSELSHELL — Minnesota-Flatwillow, Ivanhoe Dome 1, 7-11-31 spd and sd.

PETROLEUM—Minnesota-Flatwillow, 2, sw 5-12n-25e, to dd from 1558 ft. Oregon-Flatwillow Oil Co., 1, 3-13n-26e, to resume 200 ft.

PONDERA—Hiland-VanDeale, Kendall 1, ne 35-30n-3w, sd 4215 ft. Miller Bros.'s Bruins 1, nw 17-28n-1w, rig up.

ROSEBUD—Prairie O&G Co.'s N. P. 1, 9-10n-39e, sd 2310 ft. Prairie, N. P. 3, 26-10n-50e, dr 2172 ft. Prairie, N. P. 4, 28-10n-38e, sd 65 ft.

SHERIDAN—Sheyenne O&G Co., nw 15-36n-53e, to resume at 1400 ft.

SWEETGRASS—Shoshone Consolidated, N. P. 1, nw 23-2n-15e, sd 5805 ft.

TETON—Andover Oil Co.'s Carlson 1, ne 5-24n-4w, sd 150 ft. Newman et al.'s Fitzgerald 1, 26-32n-1w, rig up. Rocky Mtn O&G Co.'s Salmond 1, ne 4-23n-8w, stand 1160 ft. Earl Oil Corp., 1, se 22-22n-82, sd 660 ft.

TOOLE—Monalta Oil Co.'s Buckley 1, se 1-37n-4w, try sidetr lost 6-in. Monalta Oil Co.'s Buckley 2, sw 1-37-4w, rig. Anaconda Pet Co.'s Barthelote 1, ne 19-36n-2w, sd 1635 ft. Mahen et al's Lee 1, 10-31n-1w, sd 2264 ft.

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Roxana Drg Co.'s Toole 1, 22-36n-1e, sd 1700 ft. John Thomas et al's Buckley 1, ne 1-37-4w, dr 1000 ft. Black Gold Pet Co.'s Syrs 1, sw 30-36n-28e, dr 1400 ft. F&F Oil Co.'s Swenson 1, se 12-33-1e, repair 600 ft. Mid-Continent O&R Co.'s Farbo 2, ne 2-37-4w, dr 1900 ft.

NEW MEXICO

CHAVES—Warman Oil Trust's Blackdome 1, ne 27-13s-24e, dr 1175 ft. Cactus Dev Co.'s Sullivan 1, se 14-10s-26e, dr 2000 ft.

DeBACA—Matador Oil Co.'s Wood 1, sw 6-4n-20e, wtg for pipe at 2730 ft.

EDDY—Van Horn et al, se 18-19s-26e, dr 1660 ft. R. D. Compton's State 1, nw 2-20s-25e, dr 1026 ft. Henderson et al's Arnold 1, se 23-17s-30e, dr 3600 ft. Henderson et al's Grier 1, nw 21-16s-31e, drilling at 1760 ft. Lockhart et al's Beeson 2, ne 28-17-30e, dr 3240 ft. Lockhart et al's Parke 3, sw 15-17s-30e, dr 1100 ft. Leonard & Levers' State 2, 21-17s-29e, dr 2280 ft. Pueblo Oil Co.'s Russell 5, nw 18-17s-31e, ready to spud.

GUADALUPE—Los Angeles-Hollywood Synd.'s McMullen 1, sw 24-5n-16e, rig.

LEA—Shell Pet Corp.'s State 1, ne 32-18s-38e, dr 100 ft. Empire's State 3B, se 5-21s-35e, plugging 4695 ft. Empire's Lindley 2, se 14-25s-36e, dr 3340 ft. Continental, Sholes 2, nw 13-25s-36e, rigged and sd. Continental, Myers 1, nw 28-22s-36e, dr by whipstock 3595 ft. Walker et al's Terry 2, se 10-19s-38e, spudded and sd. Humble O&R Co.'s Lindley 3A, sw 13-25s-36e, location. Rector Oil Co.'s King 1, ne 26-25s-32e, abd 4960 ft. Bordages et al's Hughes 1, 27-19s-38e, pipe trouble 4012 ft. Morton et al's State 1, nw 32-11s-38e, dr 4180 ft. Barnsdall Corp.'s 1, se 28-16s-38e, plugged 5160 ft. Cranfills & Reynolds' State 1-C, sw 16-23s-36e, dr 3200 ft. Fisher & Lowrie's State 1, nw 11-18s-36e, dr 2705 ft. Texas-Pacific's State 4, 21-23s-36e, mvg in. Walker et al's Terry 2, se 10-19s-38e, spudded and sd. Cranfills & Reynolds' State 1-D, Lot 6, Sec 3-21s-33e, dr 2045 ft. Harrison et al's State 1, sw 35-18s-38e, sd 565 ft. Ohio Oil Co.'s Northrop 1, se 32-18s-39e, dr 1685 ft. Ohio, McDonald 1, 15-29s-36e, rig.

McKINLEY—J. W. Halsell's Santa Fe 1, 17-18s-9w, dr 3100 ft. San Juan Coal & Oil Co. 1, se 21-18n-9w, sd 2205 ft. Williams et al's Santa Fe 1, se 19-19n-8w, wtg casing at 1900 ft. Cravens et al, 1, 7-18n-9w, dr 500 ft.

RIO ARRIBA—Berringer et al's Hartman 1, ne 8-29n-7w, preparing to resume at 825 ft. San Juan Pet Co.'s Government 1, sw 14-39n-7w, sd 270 ft.

SAN JUAN—Dorothy Oil Co.'s Terwilliger 2, 29-30-9w, dr 1192 ft. Southern Union Gas Co.'s Day 1, sw 20-28n-10w, sd 1455 ft. Blackrock Oil Co.'s Blackrock 1, se 11-25n-13w, wtg on extension permit with td 1550 ft. Greathouse et al's Roderick 1, se 11-22s-14w, sd 1000 ft. Childers Dr & Pr Co.'s Westwater 2, nw 24-31n-16w, sd 2525 ft. Reserve Oil Co.'s Shaffer 2, ne 1-21n-14w, sd 780 ft. Southern Union Gas Co.'s Kutz Canon 3, 11-27-11w, dr 1820 ft. H. L. Williams' Bowman 1, ne 30-30n-15w, dr 2460 ft.

SANDOVAL—Virginia-Mex O&G Co.'s Marion 1, se 23-20n-2w, fsg at 1150 ft.

SAN MIGUEL—Pioneer O&G Co.'s Thunderbird 1, nw 14-15n-16e, dr 2285 ft. Starr Oil Co.'s Adams 1, ne 25-17n-17e, stand 3348 ft. Cibola Pet Co.'s Crown 1, se 9-13n-14e, ready to resume 320 ft. Hershfield Dev Co.'s Cabra Springs 1, ne 21-12n-22e, sd 730 ft. Benedict et al's Wilson 2, nw 25-17n-16e, ready to spud.

SOCORRO—Lockhart & Co.'s Stackhouse 1, 14-3s-6e, dr 2000 ft.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-19e, dr 1750 ft. J. B. Witt O&G Co.'s Kutchem 1, 12-7s-7e, dr 235 ft.

VALENCIA — Rip Puerce Oil Co.'s N.M.-Ariz. Land Co., 2, ne 13-6n-2w, wtg for pipe 3145 ft. Acme Oil Co.'s N.M.-Ariz. Land Co., 1, 26-6-3, water trouble 4535 ft. Harlan et al's Harlan 1, 5-6n-2e, dr 4107 ft.

COLORADO

ADAMS—N. M. Slatt's Hill 1, se 27-35-64w, dr 1175 ft.

ARAPAHOE — McDeb Drilling Co.'s Fitzsimmons 1, se 7-4s-66w, sidetracking at 4500 ft. with total depth 5090 ft.

ARCHULETA — Outwest Investment Co.'s Fitzhugh 1, sw 34-33n-1e, ready to spud.

BENT—Continental, Pipe Springs 1, se 27-27-49, dr 5555 ft.

BOULDER—Reliance Oil Co.'s Erickson 1 nw 33-2n-70w, dr 3085 ft.

DOLORES — Transcontinental, Glade 1, nw 30-41n-16w, sd 5900 ft.

DELTA—Crawford O&G Co.'s McKissen 1 ne 28-15-91, prep to resume 970 ft.

ELBERT—Belmont Oil Co.'s Maher 1, s 4-6s-59w, standardizing 3720 ft.

FREMONT—Westerville Oil Co.'s State 1 nw 16-18-69, sd 1214 ft. Continental, Harling 2, sw 21-18-70, dr 1340 ft. Hammond & Roscoe's Beltrame 1, se 1-19s-70 sd 1800 ft.

JACKSON—Midwest, Rich 21X, nw 9-6n 80w, sd for winter 3381 ft. P&R, Hendershot 1, ne 2-6n-81, sd for winter 3610 ft.

JEFFERSON—Ruby Hill O&G CO.'s Braden 1, se 24-4s-69w, ur to 3578 ft.

HUERFANO—Parker Club and Kinney Coastal, Fee 1, se 4-28s-68w, dr 4110 ft Elliott et al, Abeyta 1, nw 31-27s-65w, location.

LAS ANIMAS—Trinidad Dev Co.'s Flontz 1, se 23-32-63, set 5 3/16-in at 2700 ft, water trouble. American Helium Gas & Oil Co.'s Boling 1, sw 3-29-60, lost hole at 160 ft and skidding rig.

LARIMER—Mosher et al's Reed 1, nw 28-4n-69w, bailer lost 3160 ft. Barrows et al's Barrows 1, se 7-11-68, sd 2310 ft. Continental's Scott 5, nw 6-19n-68w, dr 3410 ft. Deininger et al's Rembey 1, ne 35-4n-70w, to resume at 354 ft. Outwest Inc.'s Hertha 1, nw 21-4n-69w, running 8¼-in. casing at 2820 ft with 1,000,000 ft gas.

LA PLATA—Royal P&R.'s Red Mesa 1, ne 27-33n-12w, resuming at 360 ft. Detroit Oil Assn.'s Olbert 1, se 9-35n-12w, dr 2365 ft.

LINCOLN—Kelly Oil Co.'s State 1, ne 36-14n-57w, sd 2970 ft.

MESA—Argo Oil Co.'s Hoel 1, ne 23-8s-104w, cem 8¼-in 2710 ft.

MOFFAT—McLaughlin et al's Williams 1, 2-3-92, carry 4¾-in. to bottom at 4400 ft. Vermillion O&G Synd., 1, se 23-9n-100w, resuming at 842 ft. Texas Prod. Co.'s Berlin 1, ne 18-12n-100w, arr on 6¼-in. at 2315 ft., td 2337 ft. Texas Prod Co.'s Knowlton 1, 33-5n-91w, rig. Midwest, Hannawalt 24, 4-6n-92w, run 13-in. at 1810 ft.

MONTROSE—Uncomphagre O&G Co.'s Colorado 1, nw 27-50-10, resuming at 2031 ft.

PUEBLO—Beulah Dome Co., Hedland 1, sw 7-23-67w, sd 932 ft.

RIO BLANCO—Texas Production's Potter 1, se 30-2n-69w, fsg dr pipe 5888 ft. White Eagle's Fordson 1A, se 9-2s-96w, ur to 3010 ft.

ROUTT—Gillespie et al's Omholt 1, se 29-4n-79w, ready to spud. Ruby Hill O&G Co.'s State 2, nw 17-6n-86w, plug back from 3127 ft to 2208 ft and testing production.

WELD—Platte Valley Pet Corp.'s Patterson 1, se 24-6n-61w, dr 5031 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-3s-56w, set 15½-in casing at 1030 ft.

YUMA—Phillips Pet.'s Anderson 1, nw 3-25-42w, dr 5062 ft. Major Pet. Co.'s Black Wolf 1A, 7-2s-43w, stand 1535 ft.

WYOMING

BIG HORN—P&R's Government 3, 24-56-98, sd 4183 ft. Westland Oil, Inc., 24-54-95 sd 360 ft. Wisconsin Holdings, 4-55-97, sd 665 ft. Yellowstone Pet Co., 7-57-97 dr 2780 ft.

CARBON—P&R, 2-19-88, sd 4562 ft. C. E. Bivens et al's Baggs 1, 35-13-92, to resume at 2200 ft.

CONVERSE—Pioneer Oil Co., 5-31-70 dr 3300 ft.

FREMONT—Texas Prod Co.'s State 1, 36-34-95 cem 10¾-in at 3010 ft.

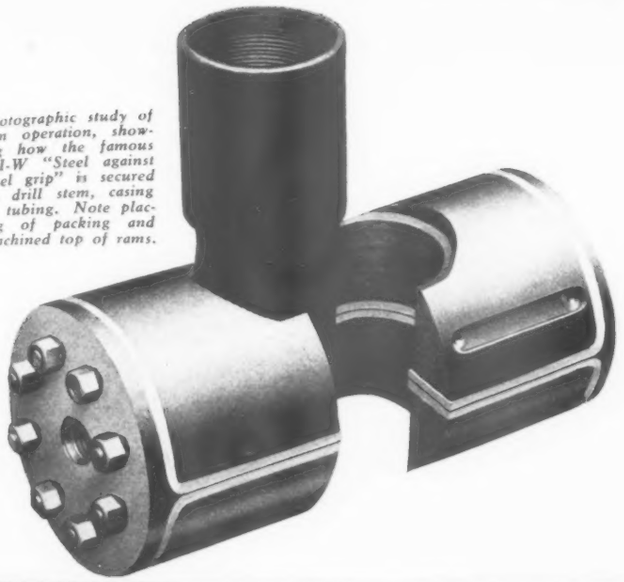
HOT SPRINGS — Midwest, 8, 6-44-98, sd 1052 ft. Ohio Oil Co.'s Smith 1, 8-46-99, dr 3480 ft. Gebo Consolidated, 1, se 23-44-95, sd 1245 ft. C. F. Robertson et al, se 17-43-92, sd 450 ft.

JOHNSON—United Oil Co., 7-47-82, sd 360 ft. R. C. Tarrant, 4-43-82, sd 600 ft Dome Synd., 3, 4-43-82w, sd 720 ft.

LINCOLN—Midwest, Grey's River 1, 25-37-117, sd 1731 ft. Midwest's Westfall 1, 35-22-115, sd 3510 ft. Mtn Oil Corp., 36-25-115, sd 100 ft.

PARK—P&R, Pitchfork 1, 14-48-102, sd 1400 ft. Henderson Prod Co., 31-58-99, sd 3000 ft. Ohio Oil Co.'s Burlington 1, 21-53-101, testing embar at 4500 ft. Resolute Oil Co., 17-27-101, prep to resume 4280 ft. Cody Pet Corp., Danker 1, sw 22-57-98, sd 2697 ft.

SWEETWATER—Mtn Fuel Supply's Tucker 1, 18-13-99, sd 2900 ft. Mtn Fuel Supply's



Photographic study of ram operation, showing how the famous C-I-W "Steel against steel grip" is secured on drill stem, casing or tubing. Note placing of packing and machined top of rams.

This Steel against Steel.. GRIP

is your Guarantee of PROTECTION

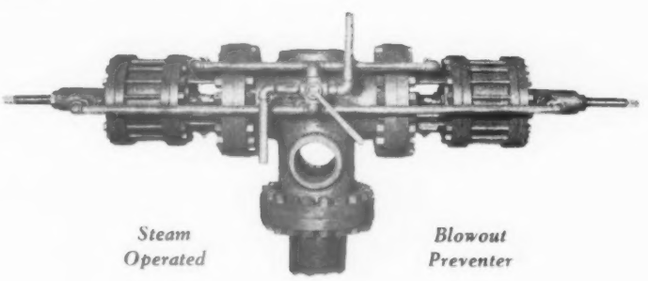
This is an exclusive patented feature of C-I-W Blow-out Preventers and Tubing Control Heads. It provides a safe, positive and unyielding control of high pressures, and is the only guarantee obtainable against destruction of equipment and loss of production.

The closing of these concave rams places a wall of solid steel around the drill stem, casing or tubing. Across the face, along both sides and around the back of these rams is placed hydraulic rubber packing, designed so that the pack becomes tighter as the pressure increases. In addition to this grip of steel against steel the rams are machined on top and bottom, thus providing a flat surface against which couplings or tool joints may butt and through which they cannot pass.

There is too much dependent upon the control of high pressures to be satisfied with anything less than this steel against steel grip. And remember ONLY C-I-W products have this superior feature.

Manually Operated *Blowout Preventer*

Tubing Control Head



Steam Operated *Blowout Preventer*

CAMERON IRON WORKS

Houston

PETROLEUM EQUIPMENT CO. 2800 S. Alameda LOS ANGELES, CALIF.

Cappers 1, 2-19-10t, sd 3200 ft. Mtn Fuel Supply's U. P. 1, 13-19-10t, sd 3100 ft. Vermillion Oil Co., 1, sw 16-12-9w, dr 1800 ft.

UINTA—California Co., U. P. 1, 7-17n-11w, dr out cem td 4635 ft.

WESTON—Gose Synd., 28-47-65, sd 400 ft.

IDAHO

BANNOCK—Norton Bros. et al's Marsh Valley 2, Lot 5, Sec 19-10s-37e, dr 2650 ft.

CLARK—Monida Oil Co.'s Beaver Dome 1, nw 32-14n-36e, sd at 1140 ft.

POWER—Gem State Pet Co.'s Arbon Valley 1, nw 2-11s-33e, sd 3800 ft.

TETON—Grand Teton Oil Co.'s Horseshoe 1, se 33-5n-44e, 10-in dr 2140 ft. Teton Land & Leasing Co.'s Bevan 3, se 28-5n-44e, dr 1610 ft.

UTAH

BOX ELDER—Utah-Pennsylvania Oil Co.'s Penrose 1, nw 3-10n-4w, dr 3415 ft. Lenora Mining & Milling Co.'s Swaboda 1, nw 9-8n-7w, sd 2755 ft.

CARBON—St. Thomas O I Co., 1-14s-9e, fsg 2300 ft. Price River Pet Co.'s Price 1, ne 16-14s-10e, dr at 3100 ft.

GRAND—Crescent Oil Syn.'s McCarthy 1, sw 27-21s-19e, sd 2000 ft. Utah Southern Oil Co.'s State 1, 26-21s-33e, dr 775 ft. Cisco Springs Syn.'s Moss 1, sw 9-20s-23e, to sidetr bit at 2140 ft.

KANE—Midwest Ref. Co.'s Parry 1, se 14-39s-1w, ur and co 2600 ft. Beaver Valley Oil Co.'s Blackrock 1, ne 20-25s-9w, fsg pipe at 3500 ft. Beaver Valley, Blackrock 2, se 19-25s-9w, sd 600 ft.

SAN JUAN—Boulder Knoll Oil Co.'s Boulder Knoll 1, nw 17-34s-25e, stand 2640 ft. Continental, Boundry Butte 1, se 22-43-22, set casing 5612 ft.

UINTAH—Home Oil Co.'s Spahr 1, sw 8-5s-21e, sd 1165 ft. Maud Ellen Oil Co.'s Neal 1, se 28-3s-21e, dr 1850 ft. Western Venture Corp.'s Krumveida 1, se 6-5s-21e, sd 1515 ft.

UTAH—Diamond O I Co., 1, sw 16-8s-5e, sd 1700 ft.

OKLAHOMA

WOODS COUNTY—T 28n, R 16w, Sec. 23, Peerless, Cromwell 1, c nw ne, dr 4775 ft.

GRANT COUNTY—T 28n, R 7w, Sec. 27, Gypsy, Bilderback 1, se c, dr 5811 ft, hfw 5647-49 ft. T 28n, R 4w, Sec. 12, Boucher et al, Dedman 1, sw c se, hfw 3105-30 ft, dr 4735 ft cas.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair, Share 1, c ne sw, dr 6775 ft.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, nec se nw nw, sd 1420 ft.

HARPER COUNTY—T 26n, R 24w, Sec. 14, Sinclair, Howell 1, c sw sw, show oil 6711-16 ft. td 7561 ft.

GRANT COUNTY—T 26n, R 3w, Sec. 23, Otstot Dev. Co., Tapor 1, nec se, hfw 3100-25 ft, dr 4165 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & nat'l Union, McNeal 1, nwc ne, sd 2795 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al, Fee 1, sec sw, sd 6104 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Volmer 2, nec se ne sw, lost tools, sd 5640 ft.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, water 4649 ft, repair rig 4860 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, sec nw, hfw 4730-4800 ft, sd 5556 ft. T 23n, R 4w, Sec. 32, Shell et al, Loomis 1, c nw nw, dr 3575 ft.

NOBLE COUNTY—T 22n, R 1w, Sec. 28, Gypsy et al, Berstram 1, sec nw, dr 2076 ft.

WOODWARD COUNTY—T 21n, R 21w, Sec. 25, Sharon, Elmore 1, swc, rig blown down, abn. T 21n, R 19w, Sec. 19, Burgoyne Bros., Merklin 1, swc se ne, sd 1910 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al, Horton 1, c ne ne, spd and sd.

GARFIELD COUNTY—T 20n, R 4w, Sec. 10, Continental et al, Brown 1, cel ne nw sw, show gas 3145-62 ft, 20M gas 5175-80 ft, dr 5420 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma, Phillips 1, c nw sw, sd 2945 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy et al, Quier 1, sec sw, sd 3970 ft. T 17n, R 4w, Sec. 34, Currie et al, Katcher 1, swc ne sw, cellar.

KINGFISHER COUNTY — T 16n, R 7w, Sec. 6, Gault-Brown, Bech 1 c nw se (owdd), sd 6022 ft.

OSAGE COUNTY—T 29n, R 6e, Sec. 29, Duffield & Howard et al, 1, nec nw, dr 1865 ft. T 24n, R 5e, Sec. 24, Continental Oil Co., 1, nwc se se, dr 2225 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, nec sw, rig. T 21n, R 7e, Sec. 32, Truner et al, Niccum 1, sec ne se, dr 1510 ft.

PAYNE COUNTY—T 18n, R 4e, Sec. 6, F. M. Marrs et al, Tietz 1, swc nw se, lcn. T 17n, R 4e, Sec. 4, Wheeler & Mote, Funnell 1, nec se, dr 1500 ft.

LINCOLN COUNTY—T 17n, R 5e, Sec. 16, Jilson & Kemp, School land 1, sec sw, dr 1850 ft.

OKFUSKEE COUNTY—T 13n, R 9e, Sec. 15, Erwin et al, W. Allen 1, sec sw ne, dr 1405 ft. T 12n, R 9e, Sec. 36, Henry Oil Co., Harjo 1, nwc, sd 2785 ft. T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, sec nw sw, sd 3660 ft. T 10n, R 10e, Sec. 25, Transcontinental et al, Lasley 1, swc nw, dr 1100 ft.

MUSKOGEE COUNTY—T 11n, R 19e, Sec. 21, E. Mills et al, Martin 1, nwc se, sd 1001 ft.

McINTOSH COUNTY—T 10n, R 14e, Sec. 31, Jennings Bros., Crabtree 1, sec nw sw, show gas 4100 ft, dr 4650 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, swc nw se, w 5443-5511 ft, show oil 5446-70 ft, 1M gas 5464-80 ft, sand 5556-60 ft, fsh.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co., Sanders 1, nwc ne sw, sd 2692 ft.

LATIMER COUNTY—T 7n, R 22e, Sec. 36, J. S. Cochran et al, Cushing 1, nwc se se, 2100 ft, dry and abn. T 6n, R 22e, Sec. 23, Limestone O&G Co., Shaw 1, nwc ne nw, dr 2300 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec. 35, Magnolia et al, Johnson 1, ne ne sw, dr 4886 ft. T 13n, R 1w, Sec. 13, Tom Slick, Martin 1, c nw nw, td 6964 ft water, woc at 6771 ft. T 11n, R 2w, Sec. 3, Ryan Consolidated, Lawton 1, ne nw, dr 4912 ft.

POTTAWATOMIE COUNTY—T 6n, R 3e, Sec. 22, Payne Drlg. Co., Bullock 1, sec ne, dr 4165 ft. T 6n, R 3e, Sec. 36, Sykes et Cook 1, sw nw ne, rig.

CLEVELAND COUNTY—T 6n, R 1e, S 20, Brownfield, Corbett 1, c sw ne, dr 4155 f

HUGHES COUNTY—T 9n, R 12e, Sec Canady, Canard 1, swc nw nw, 1M gas 281 sd.

POTTAWATOMIE COUNTY—T 8n, R Sec. 30, Keister & Manning, Towlett 1, sw ne, Hunten 4465-81 ft, 310 bbls completed.

SEMINOLE COUNTY—T 6n, R 6e, Se Mid-Continent, Talahoke 1, sec nw, sand 3 53 ft, td 3304 ft, hfw, sd. T 6n, R 6e, Sec Superior, Morgan 1, sec sand 2760-68 ft, sho oil, cmtg 8-inch.

ROGER MILLS COUNTY—T 12n, R Sec. 23, Bucy and Stone, Williams 1, c sw, 1700 ft. T 11n, R 26w, Sec. 4, L. C. Hiv Davis 1, c nw ne, sd 2840 ft.

CANADIAN COUNTY—T 1n, R 6w, Se 1, J. V. Bailey, Robinson 1, c ne nw, sd 15

BECKHAM COUNTY—T 8n, R 22w, Se 20, Carson et al, Denby 1, swc se ne, sd 1700

GREER COUNTY—T 6n, R 24w, Sec. I. T. I. O. et al, Fee 1, c ne dr 2105 ft. T R 24w, Sec. 23, Helmerich & Payne 1, c n nw, sd 2240 ft.

CADDO COUNTY—T 6n, R 13w, Sec Abernathy et al, Horton 1, Sec. 596, sd.

COMANCHE COUNTY—T 3n, R 9w, Se 3, Okla. Nat. Gas Co., Doebel 1, nec sw sw, dr 1000 ft.

STEPHENS COUNTY—T 2n, R 8w, Se 30, Smythe & Nash, Johnson 1, nec sand 248 8e, est 10 bbls.

COTTON COUNTY—T 2s, R 9w, Sec. Thomas Medlin, Johns 1, swc se, sd 2526 ft.

STEPHENS COUNTY—T 3s, R 9w, Se 22, Pelwin et al, King 1, swc se (owdd) 3180 ft.

JEFFERSON COUNTY—T 5s, R 7w, Se 11, H. W. Lee, Hctubbi 1, sec nw (owdd) 2513 ft.

HUGHES COUNTY—T 5n, R 10e, Sec. Edwin et al, Jones 1, sec ne, rig. T 5n, R 11 Sec. 15, J. J. Wright, Roberts 1, sec sw, t s.t.

GARVIN COUNTY—T 4n, R 1e, Sec. 1 W. H. Peckham et al, Mullins 1, c w2 w2, 3830 ft. T 4n, R 3e, Sec. 10, C. R. Obermyer Stricklin 1, nec sw, dr 800 ft.

ATOKA COUNTY—T 3e, R 10e, Sec. 1 Brookshire et al, Gunn 1, nwc nw, sd 80 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 3 Tex-Oklahoma Drlg. Co., Anderson 1, sec n se, 1980 ft, dr by tools.

MARSHALL COUNTY—T 5s, R 5e, Se 17, Jordan et al, Penn Mutual Life Ins., 1, nw ne se, sd 700 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 3 W. C. Endicott et al, Craig 1, c nw ne, fsh 2200 ft.

WOODWARD COUNTY—T 23n, R 17w Sec 23, Prairie O&G Co. et al, Wilbur 1, nec dr 6202 ft.

CLEVELAND COUNTY—T 10n, R 2w, Sec 8, Prairie, Slick & Phillips, Sudik 1, c ne ne plugging 7720 ft.

KANSAS

SUMNER COUNTY — Davidson et al Strickland 1, sw se, 12-35-1w, rig.

STEVENS COUNTY—Argus Oil Co.'s Armstrong 1, cnl, s½ n2, 16-34-39w, dr 630 ft. W Sidwell et al's Kelly 1, sw ne, 16-34-38w, sd 1600 ft. Argus Oil Co.'s Parker 1, c sw, 19-34-36w, dr 1490 ft.

BARBER COUNTY—Skelly's Temple Ranch 1, sw ne, 13-34-15w, sd 5160 ft.

SUMNER COUNTY — Morgan and Carey's Kawkins 1, sw se, 1-34-1e, dr 3895 ft.

STEVENS COUNTY — McNabb et al's Ramey 1, c sw, 1-33-38w, dr 1925 ft. Argus Oil Co.'s Smith 1, c sw, 13-33-37w, dr 1790 ft.

CHAUTAQUA COUNTY—Valentine's Patterson 1, nw se sw, 2-33-9e, dr 1035 ft.

SEWARD COUNTY—Mangle's Younger 1, c se nw, 24-32-39w, spd and sd. Argus Gas Co.'s Hobble 1, c se, 17-32-37w, fshg tools 2625 ft.

BARBER COUNTY — Robertson et al's Powell 1, c se se, 11-32-10w, fshg tools 4023 ft.

COWLEY COUNTY—Prairie's Desbaugh 1, Sec. 10t s7, 18-32-8e, dr 1385 ft. Roth & Faurot's Admas 1, c sw ne ne, 19-32-8e, rig.

HARPER COUNTY—Beeler et al's Bear 1, c nw, 21-31-6w, sd 1830 ft.

COWLEY COUNTY—Milton & Mead Bros' Tatum 1, se sw, 11-31-6e, dr 2700 ft.

SUMNER COUNTY—Hatfield et al's Dauber 1, nec, 18-30-1w, spd and sd. Lario et al's

Standard Supply and Hardware Company
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NEW ORLEANS, LA.
OIL WELL AND OIL REFINERY SUPPLIES
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Every branch of the petroleum industry is represented here.

Combined Capital, Surplus and Undivided Profits Exceed $10,000,000.

Resources Exceed $100,000,000

EXCHANGE BANKS OF TULSA

Exchange National Bank · *Exchange Trust Company* · *Exchange National Company*

Osborne 1, ne se, 20-30-1w, Wilcox 3987 ft, Siliceous 4005 ft, hfw, d.&a.

ELK COUNTY—H. F. Fleming's Sherod 1, nw c, 16-29-9e, td 2657-59 ft, 1100 ft oil.

SEDGWICK COUNTY — McCulloch's Buckles 1, nw se, 3-29-1w, sd 1155 ft.

FORD COUNTY—McNabb et al's Unknown 1, c se, 26-28-22w, sd 400 ft.

BUTLER COUNTY—Martin et al's Flanigan 1, c sw se sw, 29-27-3e, dr 2807 ft.

GREENWOOD COUNTY — Morrowery's Denchfield 1, se nw, 12-27-9e, spd. F. Konday et al's Rock 1, ne nw ne, 7-27-12e, dr 1025 ft.

PRATT COUNTY—Skelly's Johnson 1, ne sw, 21-26-17w, dr 4545 ft. Wilcox's Unknown 1, sw nw, 7-26-15w, td 2785 ft, frhg bit. O'Haver & Jones' Careke 1, c ne sw, 7-26-14w, td 4295 ft, repairing rig.

RENO COUNTY—Wilson et al's McPheters 1, c s½ nw, 22-26-8w, dr 2955 ft. Valerius' Stevens 1, c ne se ne, 6-26-7w, sd 1095 ft.

SEDGWICK COUNTY — Travender et al's McLean 1, se sw se, 23-36-1w, dr 750 ft. Johnson's Petrie 1, sw se, 35-26-1w, rig.

BUTLER COUNTY—Liggett's Banther 1, c se ne nw, 29-26-7e, spd.

HODGEMAN COUNTY — Swain et al's Kenthorne 1, c nw, 21-25-17w, sd 845 ft.

EDWARDS COUNTY—Dixie-Amerada's McCarty 1, sw 22-25-17w, ur 8-inch cas 4253 ft, td 4270 ft. Barnsdall's McCarty 1, nw ne, 31-25-17w, dr 4180 ft.

GREENWOOD COUNTY—John Harwood's Good 1, c sw nw ne, 36-25-9e, rig.

WOODS COUNTY—Bundy-Smith & O'Neil's Ford 1, ne nw, 28-25-13e, spd.

RENO COUNTY—Skelly's Birkett 1, ne sw, 20-24-7w, Wilcox 4172-4210 ft, hfw, td 4247 ft, sd.

WOODSON COUNTY—O. K. O. Oil Co.'s Hoagland 1, sw ne ne, 2-24-14e, 35 bbls 1647-57 ft.

STAFFORD COUNTY — Gibson et al's Mueller 1, c sw, 11-23-14w, fshg tools 3765 ft.

HARVEY COUNTY—Liggetts' Regier 1, c se nw se, 2-23-2w, hfw 3851 ft, sd. Margaret Gay Oil Co.'s Grouse 1, nw ne nw, 29-23-1w, sd 3360 ft.

WOODSON COUNTY—Derby & Spencer's Kinyon 1, cnl se nw, 29-23-15e, ru.

HOGEMAN COUNTY—Phillips' Houseman 1, c ne, 30-22-22w, sd 5034 ft.

RENO COUNTY—Witt et al's Olsen 1, se nw, 14-22-6w, sd 3565 ft.

RENO COUNTY—Burgher's Fair 1, c se ne ne, 14-21-10w, dr 2860 ft.

McPHERSON COUNTY—McCulloch's Cornelius 1, sw c, 7-21-4w, hfw 4002-05 ft, sd. Harry Skelly et al's Newfeldt 1, se ne, 19-21-3w, ric.

LYONS COUNTY—Sheedy et al's Ewers 1, c ne se nw, 4-21-10e, dr 1800 ft.

LINN COUNTY—Ferguson & Hiatt's Cayle 1, ne se sw, 22-21-22e, rig.

RUSH COUNTY—Prairie's Black 1, sw ne, 11-20-18w, dr 3953 ft.

RICE COUNTY—McCulloch's Williams 1, c ne 35-20-8w, sd 1438 ft. Derby's Johnson 1, c nw ne se, 35-20-6w, co 3580 ft.

McPHERSON COUNTY—Millmack's Decker 1, nwc 11-20-3w, dr 1500 ft.

CHASE COUNTY — Steinbushel et al's Stephenson 1, ne sw, 4-20-6e, fshg 1435 ft. Transcontinental & Cheney's Wassell 1, ne se, 36-20-9e, dr 602 ft.

LYON COUNTY—Sheedy et al's Reese 1, sw se, 16-20-10e, show oil 2395-2401 ft, hfw, d&a. Aladdin and Phillips' Ratcliff 1, swc 29-20-10e, rog.

RUSH COUNTY—Danciger's Bell 1, c se 16-19-8w, dr 3334 ft, show oil.

MARION COUNTY—Marshall et al's Higgens 1, ne c 33-19-5e, rig.

CHASE COUNTY—Steinbushel et al's Cook 1, sec 195 27, 31-19-8e, dr 1315 ft.

RUSH COUNTY—Millmack's Mohr 1, c nw 11-18-16w, sd 3507 ft.

RICE COUNTY—Tatlock et al's Ploog 1, c sw se, 33-18-9w, rig. Urschell et al's Lipps 1, c sw se, 27-18-6e, dr 945 ft.

CHASE COUNTY—E. W. Marland's Altenmus 1, se nw, 33-18-8e, dr 2750 ft.

ELLSWORTH COUNTY—Tatlock et al's Sacken 1, c sw se, 25-17-9w, sd 3228 ft.

McPHERSON COUNTY — Dixie, Johnson 1, swc 20-17-3w, dr 3530 ft. Galt-Brown et al's Zeitlow 1, c ne se se, 7-17-1w, dr 2150 ft.

NESS COUNTY—Clark et al's Vaughn 1, sw, 28-17-22w, spd.

BARTON COUNTY—Prairie's Davidson 1, nw se, 4-11w, dr 3175 ft.

DICKINSON COUNTY—Prairie and Phillips' Rumold 1, c nw sw ne, 12-16-2e, dr 31[illegible] ft. Hiatt & Durham's Went 1, nw c 17-16-8e, spd.

MORRIS COUNTY—Urschell et al's Scott 1, ne sw, 6-16-6e, dr 2115 ft.

TREGO COUNTY—Prairie's Kutina 1, c ne se ne, 29-15-21w, hfw 4383-84 ft, d.&a.

ELLIS COUNTY—Rush Oil Co.'s Gatewood 1, nw 4-15-20w, td 2765 ft, cas trble.

DICKINSON COUNTY—Cress et al's Sandon 1, nec 12-15-2e, ru and sd.

TREGO COUNTY — Dixie & Amerada's Reitmeyer 1, c ne ne, 19-14-21w, dr 3522 ft, hfw.

DOUGLAS COUNTY — Steinbushel et al's Unknown 1, sw ne nw, 34-14-21e, dr 750 ft.

ELLIS COUNTY — Streeter & Stearns' Laiker 1, sw ne, 26-12-20w, sd 1294 ft.

DICKINSON COUNTY — Emery-Curtis & Bryan's Hevner 1, c nw se, 31-13-3e, spd.

TREGO COUNTY—Day's Cuyler 1, c sw ne ne, 36-12-31w, sd and spd.

ELLIS COUNTY — Central Commercial's Helms 1, se ne, 2-12-20w, rig.

TREGO COUNTY—E. H. Morgan's Whitehair 1, nw se, 9-12-1e, sd 1768 ft.

SHAWNEE COUNTY — Jenkins & Scott's Haden 1, ne se, 8-12-14e, dr 1040 ft. Jenkins & Scott's Haden 1, se ne, 10-12-17e, sd 550 ft.

ELLIS COUNTY—Byrens et al's Fisher 1, nw se, 4-11-20w, sd 1000 ft.

RUSSELL COUNTY—Gilbreath et al's Bratton 1, c ne, 33-11-13w, dr 640 ft.

SHAWNEE COUNTY—Jenkins & Scott's Unknown 1, nw ne, 28-10-15e, sd 985 ft.

ROOKS COUNTY—Krueger's Steis 1, nw se sw, 12-9-16w, sd 570 ft.

CLAY COUNTY—Chrisler's Tivler 1, se c, 19-8-3e, spd and sd.

GRAHAM COUNTY—Madolin's Unknown 1, c se sw sw, 27-7-26w, spd and sd.

RILEY COUNTY — Derby-Skow Bros.'

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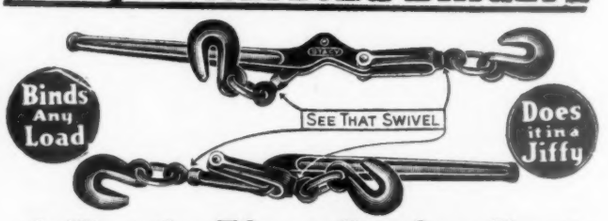

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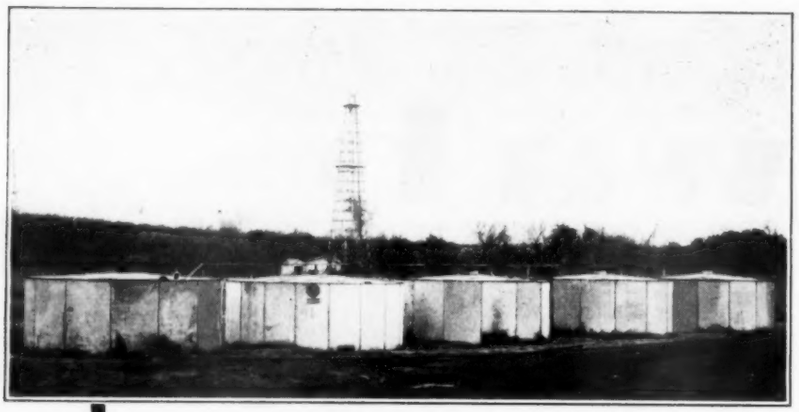

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Lundstrum 1, ne 32-7-5e, sd 2270 ft. Gray et al's Smith 1, ne se, 30-6-6e, sd 1970 ft.

NORTON COUNTY—A. L. Richards' Colb 1, c sw, 17-4-21w, rig.

MARSHALL COUNTY — Swicher & Simcox's Remple 1, c n½ nw, 22-4-9e, dr 1000 ft Blazier et al's Runkel 1, se nw, 13-2-6e, mch

NORTHERN CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
OJAI—		
Gilmore-Bishop's Pirie 1	*	2710
SULPHUR MOUNTAIN—		
M. K. T. Oil Co.'s 1, 13-4-22	*	6000
SAN LUIS OBISPO COUNTY—		
Union's Chandler 1, 12-32-14	*	5625

KERN COUNTY

BELRIDGE—Elmer Oil Co.'s No. 1, 2-29-20, pumping little oil, td 3975 ft. J. H. Kennedy's No. 1, 5-29-21, dr shale 1530 ft. K. C. Wallace's No. 1, 32-29-21, dr hard brown shale 2670 ft.

BUENA VISTA HILLS—Hart Pet. Co.'s No. 1, 20-31-24, lcn.

BUTTONWILLOW—General Pet.'s Morris 1, 6-28-23, sp. Milham Exploration's Kern 6, 8-28-23, dr out plug, td 4945 ft; Kern 7, 5-28-23, rigging rotary; Kern 8, 5-28-23, rigging rotary; Kern 9, 5-28-23, rigging rotary; Kern 10, 5-28-23, rigging rotary.

EDISON—F. M. Sayre's No. 1, 5-30-29, making production test, td 4125 ft. Shell's No. 2-1, 33-29-29, dr hard sand 2915 ft. Texas' Newman 1, 23-29-28, sr 6228 ft.

GOULD HILLS—Bomke and Ball's Larson 1, 12-29-20, dr shale 2675 ft. Casa Mira Oil Co.'s Thata 1, 20-28-20, dr shell 3120 ft.

McKITTRICK—Ozena Oil Co.'s Kendon 2, 27-29-21, pumping water, td 2685 ft. Ohio's M. M. 1, 32-20-22, dr shale 3815 ft. H. L. Whiston's Wisecarver 1, 30-30-22, flowing 25 bbls 34 gravity oil, td 5040 ft.

MIDWAY—Shell's Perris 1-A, 15-32-23, co 8200 ft. Standard's Mascot 1, 26-32-23, dr 9366 ft. Texas' Gore 4, 21-31-22, dr shale 4350 ft. Union's Reeves 1, 27-32-23, riggink up rotary.

ROUND MOUNTAIN—Gerrard and Phillips' No. 1, 32-27-29, dr gray sand 1448 ft.

SAN EMIDIO—H. A. Bardeen's Klipstein 1, 18-10-23, dr shale 350 ft; Ramsey 1, 10-10-23, rigging up rotary.

SHALE HILLS—William Gilbert's No. 1, 35-26-18, rigging up to deepen, td 750 ft. Girard Oil Co.'s Watkins 1, 28-26-18, dr shale 475 ft.

TEMBLOR HILLS—Shell's Gonyer 1, 32-32-23, dr shale 2707 ft.

WEED PATCH—Shell's Porter-Day 1, 29-30-29, dr shale 1555 ft.

SANTA BARBARA COUNTY

ARROYA PARIDA—Shell's Fithian 1, 19-4-25, sr 2333 ft.

BUELL—Union's Buell 1, dr shale and hard sand 3950 ft.

CARPENTERIA—Continental's Bailard 124-1, dr shell 2400 ft.

CASITAS — Standard's Shepard 1, 26-4-25, pumping little oil and water, td 1385 ft.

GATO RIDGE — Barnsdall's Teg-1, 9-8-32, grading road.

GOLETA—Walter Barnhart's Pomatto 1, 1-4-29, plugging back to 1670 ft. General Pet.'s Crandall 138-1, dr shale 2616 ft; More 1, sd 4533 ft; More 2, flowing oil and gas, td 4330 ft. Standard's Edwards 2, dr shale 3200 ft.

LOMPOC — Ohio's Hollister 1, 2-6-34, dr shale 2980 ft. Prairie Oil & Gas' Shyvers 1, 15-7-35, dr hard sand 1060 ft.

LOS OLIVAS—L. B. Tannehill's McGilvray 1, 23-7-31, dr shale 4400 ft.

ORELLA—General Pet.'s Erburu 2, dr shale 1262 ft. Shell's Cov. 2, rigging up rotary; Rutherford 3, 1-4-31, sr 1635 ft.

POINT CONCEPCION—Standard's Gerber 1, dr hard sand 4275 ft. Universal Cons.' Concepcion 1, 30-5-34, lcn.

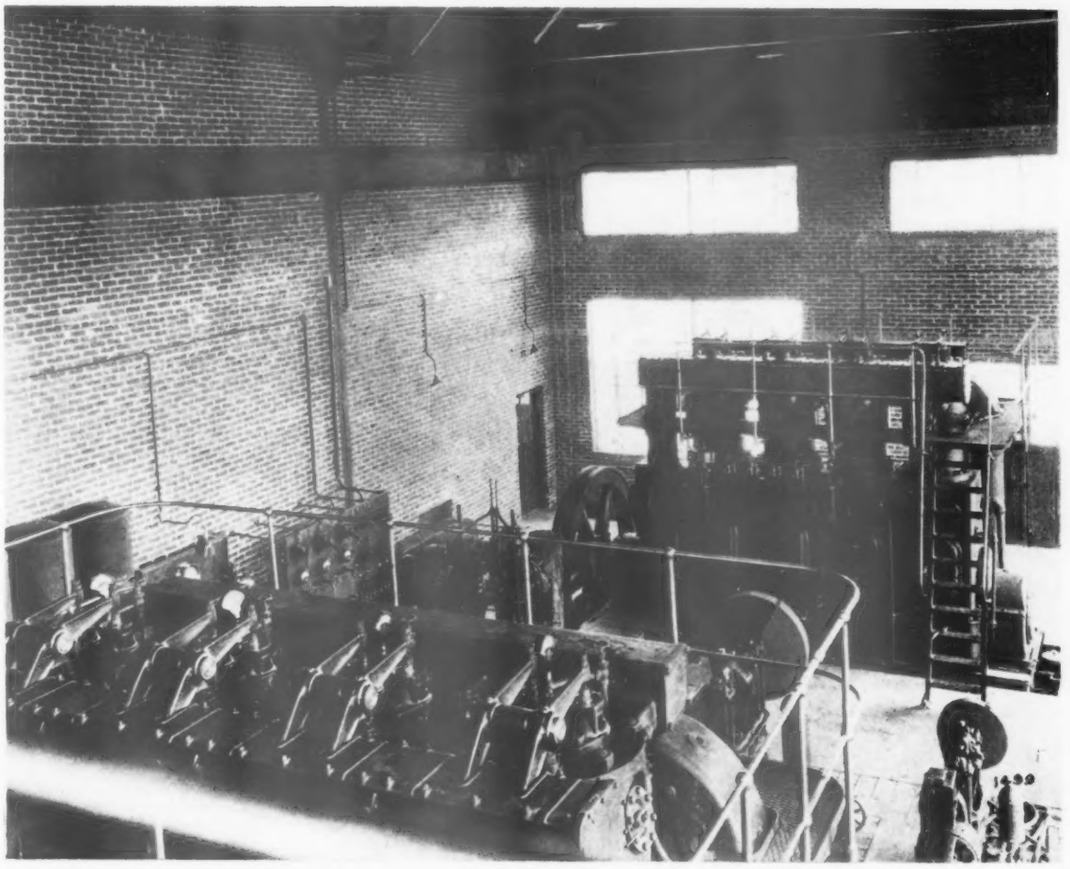
SANTA MARIA—O. C. Fields Gasoline Co.'s Norswing 1, 8-9-33, rigging rotary. Shell's Careaga 1, making production test at 5713 ft.

WILLOW SPRINGS—Moran and DeCamp's Marsh 1, dr 150 ft.

VENTURA COUNTY

CAMARILLO—Calleguas Oil Syn.'s Leonard 1, 6-1-20, rigging up rotary.

CONEJO—American Oil Co.'s No. 1, 33-2-20,



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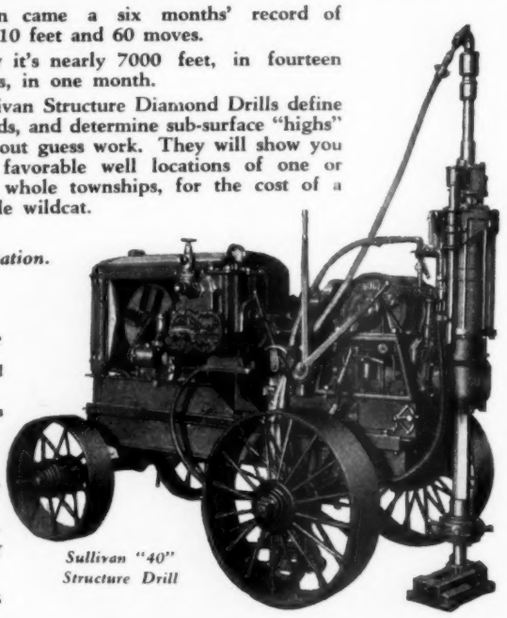

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Consulting Geologist and Geophysicist

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co 1400 ft. Triunfo Oil Co.'s No. 1, 24-1-1[illegible] out cmt 1607 ft.

FILLMORE—General Pet.'s Burson Ra[illegible] 1, 6-3-19, new lcn.

OJAI—California-Ventura Oil Co.'s La Cr[illegible] 1, surveying hole, td 5525 ft. Continental's [illegible] 21-4-22, dr shale 6515 ft.

OXNARD—Shell's Pfeiler 1, coring 1428 ft.

PIRU—Bolsa Chica Oil Co.'s Snow 1-A, [illegible] 18, dr shale 2000 ft. E. A. Fennell's Lank[illegible] shim 1, 13-4-19, dr hard sand 1420 ft.

HOPPER CANYON—George H. Hadley's No. 1, 13-4-9, dr hard sand 682 ft.

RINCON—Associated's Snowball 1, 19-4-[illegible] dr gray sand 1358 ft.

CALABASAS—Olympic Corp.'s Calabasas [illegible] 18-1-17, dr hard sand 2220 ft.

SANTA PAULA—W. W. Bryant's Anlauf [illegible] deepening from 1150 ft. Empire Oil Co.'s Steen 4, 13-4-21, dr shale 3100 ft. Universal Exploration Co.'s Anlauf 2, bldg rig.

SATICOY—Standard's Citrus 5, 10-2-22, sdtg drill pipe, td 8535 ft.

TIMBER CANYON — Southern Exploration Co.'s Timber Canyon 1, 18-4-20, dr shale 575 ft.

VENTURA—Prairie Oil & Gas' Sexton 1, 30-3-22, rigging up rotary, td 4457 ft.

MISCELLANEOUS

FRESNO COUNTY — Fresno-Madera Oil Co.'s No. 1, 18-12-21, deepening from 4300 ft. Currency Pet. Co.'s No. 1, 28-21-14, dr hard sand 3650 ft. Western Gulf's Welch 1, 26-15-12, dr shale 3615 ft.

KINGS COUNTY—Wellport Oil Co.'s No. 1, 9-24-17, dr shale 3166 ft. J. E. O'Donnell's No. 1, 7-23-20, dr shale 1672 ft.

MADERA COUNTY — George F. Getty's Chow Chilla 1, 8-10-14, dr shale 2066 ft.

MENDOCINO COUNTY — Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 2515 ft.

MONTEREY COUNTY — Standard's Piedmont 1, 23-22-7, dr hard sand 3750 ft. Union's Paige 1, 8-22-8, dr shale 3006 ft. Shell's Dudley 1, 15-22-9, plugged to 4380 ft.

SAN LUIS OBISPO COUNTY—Panorama Oil Co.'s Panorama 1, 7-31-21, fsh for 6¼-inch cas, td 4010 ft. Paso Robles Syn.'s Emerick 1, 34-27-15, co 3415 ft. Latin-American Oil Co.'s Upton 1, 31-27-15, co 4160 ft. Midwest Refining Co.'s Hately 1, 34-31-15, co 3800 ft, td 3830 ft. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, dr shale and sand 1910 ft; Pricco 2-A, 5-31-13, fsh for tools 1105 ft. Texas Pacific Coal & Oil's No. 1, 25-32-14, pulling 6¼-inch cas, td 4000 ft.

SOUTHERN CALIFORNIA

BANDINI—George F. Getty's Kellam 1, dr shale 4633 ft.

CALABASAS — J. W. Martin, 1, dr shale 1238 ft.

GARDENA—Ohio Oil Co.'s Fish 1, rigging rotary.

HERMOSA — California Ventura Oil Co.'s Smith 1, co to bottom, td 5040 ft.

LA HABRA—R. C. Rucker's Grazide 1, dr shale 3630 ft. Union's Sansinena 11, dr shale with oil showings 2510 ft.

NEWHALL — Consolidated Oil Co.'s Hammond 1, running 10-inch cas, td 1155 ft. Pico Dome Oil & Gas Co., 1, co 675 ft. Pioneer Pet. Co.'s Cannon 1, dr shale 1800 ft. York and Lockhart's Clampitt 2, rig.

NEWPORT — Meso Pet. Corp.'s B. G. 1, pumping water, td 4910 ft.

POMONA—Grimes and Girrard, 1, dr shale 733 ft.

PUENTE—Western Gulf's Diamond Bar 1, dr shale 3628 ft.

RICHFIELD—Weber and O'Brien's Brown 1, co to bottom, td 5350 ft.

SAN FERNANDO—Shell Oil Co.'s Andrews 1-1, ready to sp.

SAN JOSE HILLS—Richfield's Benadette 1, lcn.

SOUTH LOS ANGELES—William Diller, 1, dr shale 5222 ft.

TELEGRAPH CANYON—Union's Rimpau 1, dr shale 3525 ft.

RIVERSIDE COUNTY—Hemet Pet. Co.'s Ward 1, dr shale 3560 ft. Trabuca Oil Co., 1, 28-4-6, dr shale 4328 ft.

SAN FERNANDO—Marcell Pet. Co.'s Marcell 1, dr shale 1611 ft.

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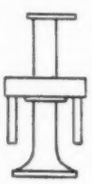

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

HIRSCH, BROWN AND SUSMAN
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156-Foot Derrick For Oklahoma City

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In addition to permitting pulling of four 32½-foot joints of drill pipe and saving about 15 per cent of time, there is an increase in 25 per cent of floor space, the space being 26 feet from corner to corner.

The derrick weighs 60,000 pounds and will withstand wind velocity of 150 miles per hour. It is built of seamless tubular steel, with the starting legs of 42½ pound steel.

International First Aid Meet

Washington.—The Ninth International First-Aid and Mine-Rescue Contest, sponsored by the Joseph A. Holmes Safety Association, will be held at Louisville, Kentucky, September 16, 17 and 18, the date and place having been approved by Scott Turner, director of the Bureau of Mines, and president of the Joseph A. Holmes association.

Expert first-aid and mine-rescue teams from many of the important mining districts of the United States will compete, each team being required to perform certain definite problems in first-aid practice, calling for the treatment of injuries and proper handling of the patient.

Employees of coal and metal mines, quarries and metallurgical plants, and workers in the oil and gas industries are eligible to participate in the contest. More than 400,000 workers in the different mineral industries have been trained in first-aid or mine-rescue methods by the Bureau of Mines, over 82,000 having been so trained in the past fiscal year.

An unusual feature connected with the meet will be an extensive manufacturers' exhibit of "permissible" mining equipment and mine-safety devices illustrating the various types of gas masks, gas detectors mine lamps, breathing apparatus, etc., tested and approved by the Bureau of Mines.

Houston. — Gulf Production Company has abandoned its wildcat test, H. J. L. Stark 1, located 1½ miles west and a little south of production in the Port Neches field, Orange County, in the Nancy Block Survey. It had attained depth of 6605 feet.

There are at present four producing wells at Port Neches, all being the property of The Texas Company, which discovered the field by seismograph.

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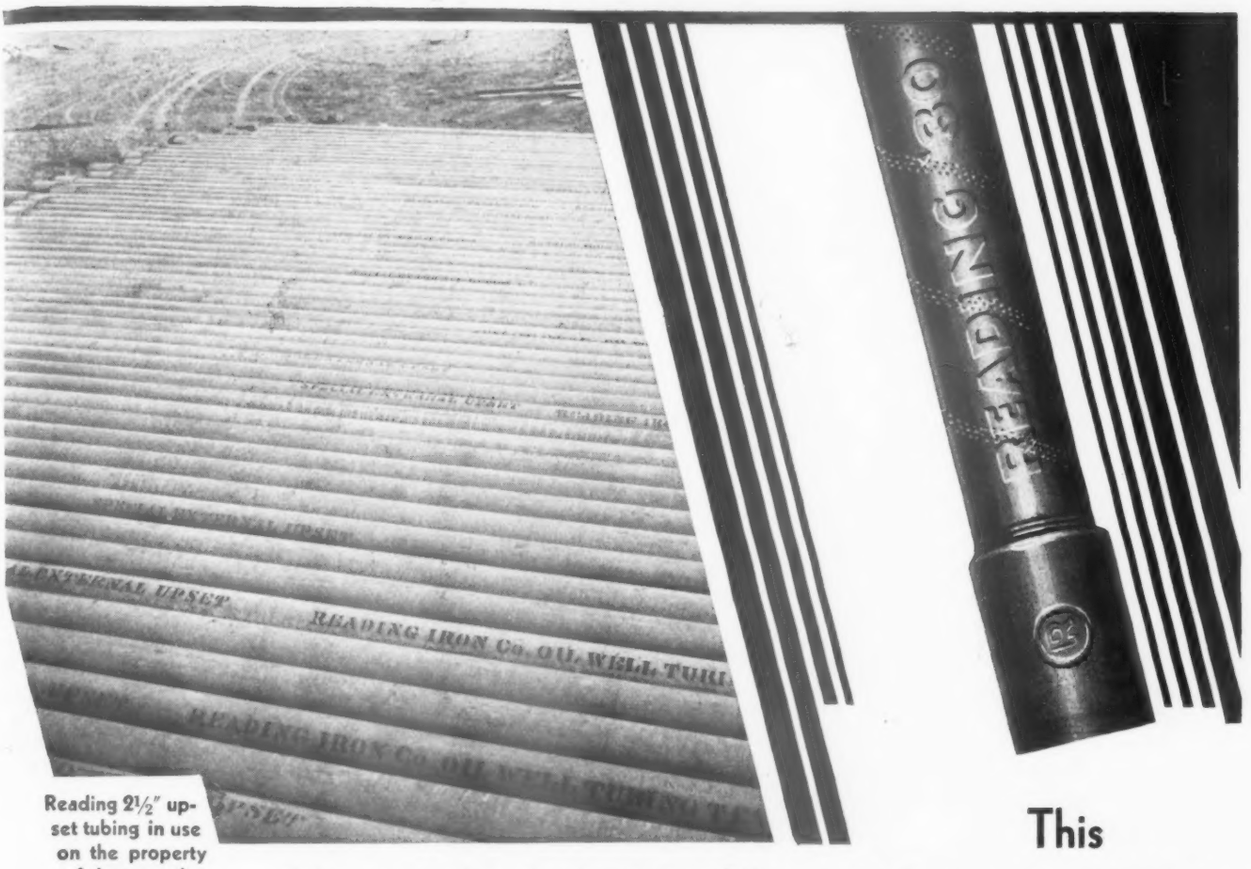

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GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

Illustrated above is one step in the making of a Halliburton Cement Mixer in the company's shops.

In oil well cementing s-p-e-e-d is the indispensable factor, the essential "ingredient." When Halliburton entered the field no mixing method was fast enough to provide the SAFETY factor desired. Accordingly, an entirely new principle of cement mixing was devised—a type of mixer which provides not only the fastest known method of mixing cement and water but one which introduces a new degree of mixing *efficiency*. The Halliburton mixer is used only in the Halliburton Process.

HALLIBURTON

OIL WELL CEMENTING CO.

Duncan, Oklahoma

To keep abreast of drilling methods, it is necessary to keep abreast of cementing developments. THE CEMENTER—filled with interesting information—will be sent gratis as issued on receipt of the coupon.

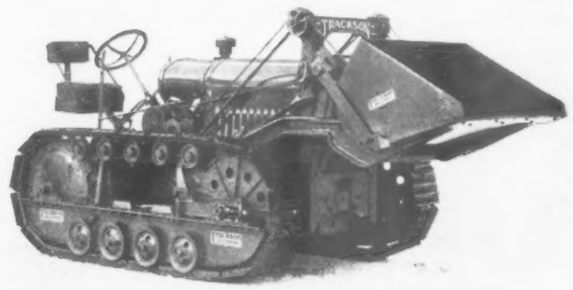
Halliburton Oil Well Cementing Co.,
Dept. OW, Duncan, Okla.
Without cost or obligation, please place my name on the list to receive THE CEMENTER regularly as issued.

Name .....

Company .....

Address .....

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS



New Trackson Shovel

Shovel

TRACKSON COMPANY

The new Trackson shovel which was introduced recently by Trackson Company, Milwaukee, Wisconsin, is designed expressly to meet the needs of those who dig and handle materials of all kinds. It is designed for oil and gas companies, contractors, road builders and many other industrial operators for excavating, spreading, levelling, grading, backfilling and transporting dirt, crushed stone, and refuse.

One of the leading features of the Trackson shovel is its portability. It is built for mounting either on wheel tractors or on crawler units like the Trackson McCormick-Deering shown here. The crawlers provide a sure footing and positive traction in bad ground conditions and are recommended for operation in soft, loose or slippery soil and in very

This trackson shovel is built of special, super-strength steel castings and heavy, re-inforced structural steel. The bucket proper is made of one-quarter-inch steel plate with a cutting edge of special plow steel one-half by six inches. The bucket is controlled by a mechanical clutch-operated hoist.

Strength is provided in the frame of the shovel through the main side frames, made of heavy structural steel.

Additional strength is offered by a special saddle casting which connects the two members and assures rigidity. The main frame is supported only at the front and the rear of the tractor and absorbs all thrusts and strains, so that the tractor merely serves as the power plant and is relieved of all the shocks to which excavating equipment is subject.

A single lever controls the bucket, and an automatic clutch release is had to prevent raising the shovel too high. A special feature is the bucket return, which is either power-operated or automatic.

The new Trackson shovel has a digging range from eight inches below ground level to 40 inches above.

Dimensions and specifications of this new Trackson shovel may be obtained by writing the company's Milwaukee headquarters.

UNITED CRAWLER TRACTOR CIRCULAR

An attractive eight-page circular, printed in the United orange and black, by Trackson Company, Milwaukee, describes the advantages of the United crawler tractor for oil field work, road building and maintenance and other operations. It is illustrated with interesting action pictures and gives measurements and specifications of the United crawler tractor. The circular may be obtained from the company offices in Milwaukee.

New Speed Changers

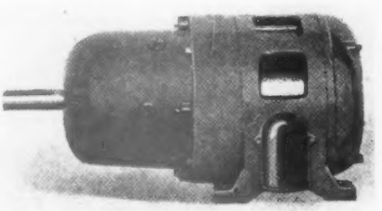
CROCKER-WHEELER ELECTRIC MANUFACTURING COMPANY

Crocker-Wheeler Electric Manufacturing Company, Ampere, New Jersey, gives complete illustrated descriptions of the various types of new speed changers now being marketed by this company in Bulletin No. 233, which is available upon request.

These speed reducers and increasers are for use with electric motors to drive pumps, compressors, fans, woodworking machines, blowers and exhausts; also to drive electric generators, from high speed and light prime movers, such as steam turbines and electric motors.

The changer is direct connected to the motor to do away with the previous line-up of connections necessary to step up or step down speed. Crocker-Wheeler speed reducers and increasers of powers up to about 25 horsepower are "built into" the rear end of the motor frame, to avoid the use of couplings and base plate. They work by the adhesion of hard ground steel surfaces rolling up each other and pressed together with forces which insure driving without a slip at all times.

Two distinct types have been developed which are called the "C" and the "S" type of speed changer. The "C" type consists of three cylindrical rollers lying with paralled axes in a straight line and embraced by a ring whose interior surface is also ground with accuracy in cylindrical form. The "S" type, instead of three rollers side by side, has a central roller or shaft surrounded by three planetary roller of equal size housed in a cage or retainer. The central shaft is the high speed member and the planetary rollers and cage are the low speed member.



Crocker-Wheeler Speed Changer

The accompanying illustration shows the S-30 and 25-Y combination 10 horsepower, 1150 to 160 revolutions per minute. The ratio of reduction for the Type "C" reducers, 10 horsepower, 1750 r. p. m., 2 to 1 size runs C23; the 3 to 1, 4 to 1, 5 to 1, 6 to 1 and 7 to 1 sizes runs C31, and sizes 8 to 1, 9 to 1 and 10 to 1 reduction runs C35. Bulletin No. 233 gives the above information for all horsepower reducers from 1 1-2 to 50 horsepower, and the same tabular information is outlined on the Type "S" speed reducers on ratio of reduction.

Lee B. Mettler Company, 406 South Main Street, Los Angeles, has published a brochure titled "The Challenge to Waste," which is devoted to describing the Mettler entrained combustion gas and oil burner. A booklet explaining reduced gas bills through use of the gas burner and a booklet covering installation and specifications and blueprints of the Mettler gas burners are also available by writing the company headquarters given above.

A combination gas and oil burning unit, a new product of the company, is also completely described in recently published literature, which will be mailed upon request.

"Safte" Lock Traveling Valve

PETROLEUM EQUIPMENT COMPANY

Petroleum Equipment Company, Frisco tracks at West Rio Grande Avenue, Fort Worth, Texas, has started marketing the new "Safte" Lock traveling valve, which is designed to eliminate difficulties encountered by bottoms and crowns of valves unscrewing while in operation.

It is a simple locking device, adding no extra parts to the valve other than the machining of the crown and bottom to accommodate the lock. The threads on the valve body are protected by the lock copper disc, and the design is to avoid loosening of a crown or bottom by pounding or vibration after the lock has been set.

The "Safte" lock traveling valve is machined in the Petroleum Equipment Company's plant from solid cold drawn steel bar. The steel is an alloy adapted to this type equipment.

More detailed information may be had on this new lock by writing the company direct.

An interesting bulletin on oil well chains has just been issued by the Union Chain & Manufacturing Company, Sandusky, Ohio. Featured in this bulletin are two new chains, the Union No. 1240 RXX (A.P.I. No. 4) and No. 119 ORXX (A.P.I. No. 3), otherwise known as the "tool pusher" and the "roughneck."

The bulletin contains a complete description and specifications of the various Union A. P. I. chains, and other data of interest to men in the field. Copies may be obtained from any of the stores of the Frick-Reid Supply Corporation, distributors, or by writing direct to the manufacturers.

Catalog No. 28, recently published by the Deming Company, manufacturers of hand and power pumps for all uses, Salem, Ohio, is now available. Price circular No. 103 applying to this general catalog is attached inside the front cover for convenience to the reader of the catalog. Complete specifications of all Deming pumps are given with illustrations.

Bulletin No. 4000 of the Deming Company is devoted to the description and illustration of the Deming-Mueller high-efficiency, ball bearing side suction centrifugal pumps. Most of the space in this bulletin is taken up with performance tables on the motor and belt driven units. Price circular No. 44, applying to the above bulletin, is a part of the bulletin.

Both the catalog and bulletin may be secured by writing the home office of the Deming Company at Salem, Ohio.

Lufkin Announces New Lufkin-Sykes-Herringbone Unit

Lufkin Foundry & Machine Company, Lufkin, Texas, announces its new Lufkin-Sykes-Herringbone pumping unit in the April "Lufkin Line," published by the company monthly. The publication is replete with illustrations, specifications, blueprint setting plans showing various hook-ups, and contains an introductory article by W. C. Trout, vice president and general manager.

In addition to the data concerning Lufkin equipment, the magazine contains an interesting story on the expansion program of the Humble Oil & Refining Company and pictures of prominent men in the oil fields.

A request sent to the home office at Lufkin will bring the magazine without cost.

Rotary Brake Lining

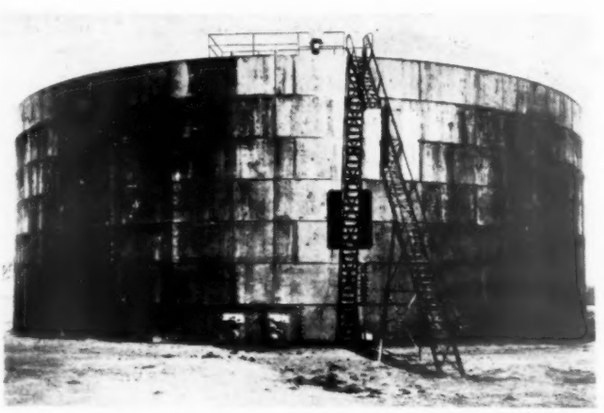
DURWYLLAN COMPANY

Durwyllan Company, Paterson, New Jersey, is manufacturing the new Alltraffic and Triplewear brake linings for rotary drilling. Under test the Alltraffic brake lining is reported as making 18 round trips in a 6000-foot well. Alltraffic lining has been developed by Durwyllan engineers following extensive surveys of the oil field conditions. It is manufactured in sizes ranging in width and thickness from seven-inch by one-inch to 12-inch by 1½-inch. It is built especially for tough wear and is cured to prevent smoking and dust conditions.

More complete details concerning this new brake lining diameter and with a direct reading gauge for both exter- given above.

Chicago Pneumatic Tool Company, 6 East 44th Street, New York City is mailing out a new catalog covering the CP Tucone rock bit. The catalog runs 32 pages and is fully illustrated with color drawings of the bit, photographic views showing the manufacture and testing of the bit parts, which are completely described.

McEverlast, Inc., 111 West Seventh Street, Los Angeles, manufacturer and distributor of protective coatings for all types of engineering structures, announce the appointment of O. A. Steller as manager of the advertising department. Steller formerly was editor of the magazine "Concrete," and also served the Porland Cement Association at Chicago.



Here is closeup of one of a battery of four 80,000-barrel oil storage tanks which were erected in 40 days for the Empire Pipe Line Company in the Oklahoma City oil field by the Kansas City Structural Steel Company, showing the latest tank material and construction of this manufacturer.

=HAPPY ENDLESS BELT=

We are pioneers of **Endless Belts** *applied to* **Band Wheel Power** *and* **Band Wheels**

We have proven the biggest economy ever introduced in Oil Field Transmission

ENDLESS Belts are successfully applied by using Happy Automatic Band Wheel Power Idler and Happy Vertical Tightners for beam wells.

We Claim—

No down time account belt clamp—
No down time account belt cutting
Corrected belt tension
LONGER BELT LIFE.

HAPPY BELTING COMPANY

TULSA, OKLAHOMA . . . BRANCHES { ELDORADO, ARKANSAS
SEMINOLE, OKLAHOMA

SQUEAKS FROM THE BULL WHEEL

A group of traveling men were swapping lies about their radios in a Smith Center drug store. An old man had been listening silently.

"Got a radio, old man?" asked one of the drummers.

"Yeah," replied the old fellow. "I got a little two-tube affair. It's a pretty good one, though."

"Can you tune out these little stations with it?"

"Well, I was listening to a quartet the other night, an' I didn't like the tenor, so I just tuned him out and listened to the three of 'em."

The new hardware clerk prided himself on always having a snappy comeback.

"Do you keep refrigerators?" the nice looking woman inquired quietly.

"No," he snapped, "we sell them."

"Anyway," she said, as she strolled toward the door, "you'll keep the one you were going to sell me. Good morning."

"Dear, I saw the sweetest little hat downtown today."

"Put it on and let me see how you look in it."

It seems that a certain merchant wishing to capitalize the Easter season, had a number of baby chicks dyed blue, pink, green, purple, etc., and placed them on display in his show window to amuse the crowd.

When the display began to pall, he returned the chicks to his back yard and let them go. The rooster eyed them askance and seemed greatly disturbed. He finally walked away with a noticeable glare in his eye. Suddenly coming upon the peacock back of the barn—he knocked him dead.

"Oh, Judge?" cries sad Mrs. Huggleman, "must my husband die on the gallows?"

"Of course not, of course not. All we do is tie the rope around his neck and shove him off. From then on it's entirely up to him."

McGinty—I've a terrible corn on the bottom of my foot.

Pat—That's a foine place to have it. Nobody can step on it but you.

Customer—"Are those eggs strictly fresh?"

Grocer—"George, just feel if those eggs are cool enough to sell yet."

"How old are you, Mary?"

"Fifteen."

"A girl of fifteen should tell her mother everything."

"I know it. But mother is so innocent, really I haven't the heart."

A Chinese author, Dr. No Yong Park, bowed smilingly to 300 clubwomen while talking at the foreign affairs school in Cambridge, and said: "Excuse me if I use these words. I learned them at Harvard college and want to make use of them."

Speaking of the foreign consul who conducts consular courts in China, he said: "He is the judge, lawyer, attorney, the whole cheese."

Excepting the foreign business men and missionaries, he declared: "The majority of foreigners are fortune hunters, very much half-baked or too hard boiled."

In closing, he declared: "In the past, the American people have been the best friends of China. I assure you this is no applesauce."

Miss Lindy Jackson walked into the office of the leading colored lawyer in Atlanta. Approaching the lawyer, she said: "I wants to sue Jim Anderson for breach of promise."

"What evidence have you got that he made love to you?" asked the colored examiner.

"What evidence," shouted Lindy. "Man I'se got four worn-out sofas, two broken chairs, an' a lamp dat won't light."

A young colored couple was sitting at the foot of the statue of Liberty.

Henry was holding Mandy's hand.

"Henry," said Mandy, "does yo' all know why dey has such small lights on de statue o' Liberty?"

"Ah dunno," replied the Ethiopian swain, "unless it's because de less light de more liberty."

She looks at me with misty eyes,
That lass I love so well.
And with a voice of anguish cries,
"Say, ain't these grapefruits hell?"

"Been necking?"

"Naw, I just shaved myself."

She: "I'm a mind reader."

He: "Can you read my mind?"

She: "No. I left my magnifying glass at home."

Daughter: "And will the wedding ceremony start off promptly, father?"

Father: "Right at the crack of the gun!"

Maxine: "Bill has the fastest car going."

Babe: "Yes, and the slowest coming back."

Straight to Pay Sand!
with Appleman Gumbo Bits

The Appleman Bit is designed to give speed and a straight, clean hole. Wherever used, you will find them going *straight to pay sand* and greater savings for the operator.

Features that Give Speed

Self-Sharpening blades and water course leading direct to the cutting edge give great speed.

Greater Profits

Sidewall cutting attained by specially designed blades, and a well-prepared hole "bored to size," coupled with lower power costs per foot drilled bring about greater profits.

and a Straighter Hole

Holes drilled by the Appleman Bit are straighter for less weight is needed to feed this bit.

Write for complete information today.

B.K. APPLEMAN
BEAUMONT, TEXAS

THE ANSWER
to the drillers' demands!

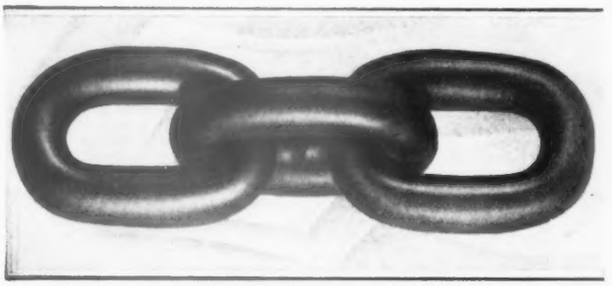
It is said an "Ideal" is never obtained—that it is something mythical—too perfect to be within reach of mankind.

Yet the drillers' ideal may be reached with a bit made from ASCO Well Bit Tool Steel—steel which causes the driller to cast aside worry about rock formations. ASCO Well Bit Tool Steel is made to stand the gaff under the most severe strains, thereby giving the assurance of continuous drilling without fear of tool or labor loss.

When the going gets tough, try a bit made from ASCO Well Bit Tool Steel—watch the results—note the difference.

THE ANDREWS STEEL CO.
NEWPORT ASCO KENTUCKY

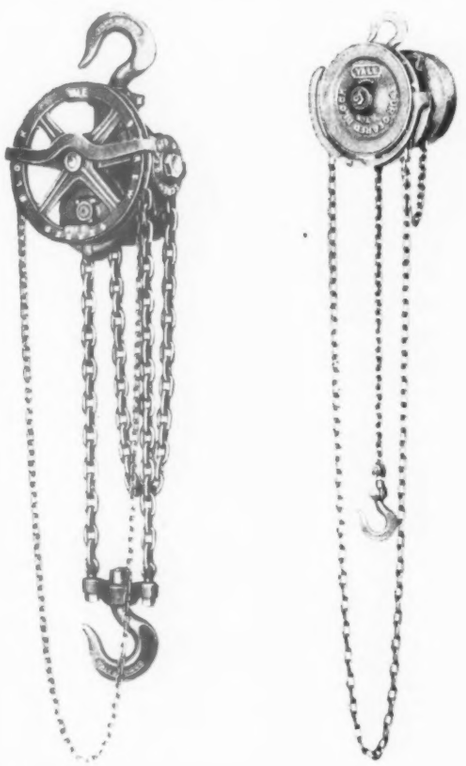
TRADE **YALE** MARK
STEEL CHAIN



EACH link is made with full respect for its individual importance. That chain is no stronger than its weakest link is trite, but true. So true that Yale takes every precaution with the manufacture of all chain used in Yale Chain Blocks. EVERY LINK is made of special heat treated steel. EACH LINK is die formed, electrically welded, trimmed, and *stretched to gauge*, that the unit of chain may offer the utmost in strength, safety and service.

YALE & TOWNE MFG. CO., STAMFORD, CONN., U.S.A.

Canadian Branch at St. Catharines, Ontario



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YALE MARKED IS YALE MADE

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INEVITABLE

WHEN you consider the exacting standards of workmanship, the modern manufacturing facilities, the many careful inspections and the rigid, uncompromising tests that back this old established line of oil country tubular products, one thing is certain—their high quality and uniformity is inevitable.

Since 1828

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SPANG WELDED *and* STANDARD SEAMLESS

OIL COUNTRY TUBULAR PRODUCTS

The **PHOTOGRAPH** *is* **UNRETOUCHED**

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